GERMANY

A General and Regional Geography

by

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With 32 Illustrations
and 124 Maps and Diagrams



METHUEN & CO. LTD., LONDON
36 Essex Street, Strand, W.C.2

First published in 1947

CATALOGUE NO. 4254/U

PRINTED IN GREAT BRITAIN
BY WESTERN PRINTING SERVICES LTD., BRISTOL

PREFACE

VARIOUS SPECIAL difficulties have presented themselves in the writing and final arrangement of this book.

First, Germany is today one of the greatest problems of international relations and problem number one in British foreign policy. Germany is the home of geopolitics and there are many works that criticize the German *Geopolitiker* and re-evaluate the German problem on non-German standards. I have dealt with this theme in my *German Lebensraum* in its geographical aspects and I do not propose to return to it in detail in this book, although some of the material of the *German Lebensraum* will be found in these pages.

Second, Germany has suffered great changes since 1939. Its boundaries have changed since 1938 and are not yet fixed, and it is politically divided into two federal republics, each of which contains a number of partially new component states. Cities and towns have been obliterated—though it is uncanny to witness the revival of apparently normal living in their rubble. Production and trade were disorganized and reduced at the end of the war and have suffered great changes through the dismantling policy and through the barriers of new frontiers. It has been necessary, therefore, to refer primarily to the pre-war conditions of population and production, with correctives where necessary and practicable for the post-war period.

Third, since this purports to be a work on geography, it is essential to be clear as to the conceptual framework upon which it is based since this obviously affects the whole question of selection and presentation. Geography has now reached the stage where works dealing with major areas require rigorous selection of material and scope. Geographers need to intensify their lines of attack to specific problems of man-land relationships. We must build from the particular—the small area—to the general. Germany, like France and Britain, has a formidable geographical literature, and important geographic problems have been tackled in one area, rural or urban, but not in another. Which is the more important for the advanced student and for the researcher—a general overall presentation of the geography of a country or the specific illustration of some of the great variety of problems, whether "systematic" or "regional", to which the geographer has so much to contribute? It is a remarkable

fact, and one that deserves the strongest emphasis, that our German colleagues produced a tremendous amount of first-class research in spite of the Nazi regime and, moreover, were just as disquieted by the geopoliticians in their midst as we were. Their work continued during the war and ambitious programmes of nation-wide research by geographers are now taking shape. How shall one present this material in one volume? There are three alternatives. A "systematic approach" would take the various geographic aspects of the country as a whole and illustrate each from selected special studies. A "regional approach" would present the varied geographic aspects of each section of the country as a "synthesis". This assumes that all the aspects have been studied in each area, which, of course, is not the case. A single regional study, even in broad outline, demands a volume in itself, for the varied aspects of land and society in any area can only be understood in terms of their historical development, not merely in their present-day correlations. Moreover in a group of regional studies, many of the facts and arguments call for much repetition from one area to another. A third alternative is a compromise in which a general is combined with a regional section, in which case both have to be reduced in length. I have adopted the compromise. In consequence, no special geographical problem, whether physical or cultural, and whether general to Germany or particular to a part of it in a small area, has been presented as thoroughly as the available geographical researches permit and demand.

Finally, there is the question of the selection of sources. There are several first-class works in German on Germany. Probably the best plan would be to translate one of these, for no matter how carefully and independently a non-German may work on an original presentation, he will certainly come out with a product in many ways inferior to the native one. German works, it is of interest, are all predominantly regional. An important exception is the small book on *Deutschland*, written by Friedrich Ratzel in 1898 and reaching its seventh edition in 1943, edited by Hans Bobek. Here is a classic work, beautifully written, with a conceptual framework that gives clarity and direction to modern geography. It ranks in my view as a classic with Vidal de la Blache's *Tableau de la Géographie de la France*, and should be read by every student of the geography of Germany. It will serve also as an essential and long overdue corrective to the generally held view that Ratzel was a "naïve environmentalist". It is high time that Ratzel's work was re-evaluated, independently of Miss Semple's *Influences of Geographic Environment*. The best regional geography is probably the Norbert Krebs' series of three volumes: N. Krebs, *Südwesten*, H. Schrepfer, *Nordwesten*, and N. Brandt, *Nordosten*. I have drawn heavily on these three works. To a lesser extent I have used G. Braun's *Deutschland*. The two volumes on *Das*

Deutsche Reich in the *Handbuch der Geographischen Wissenschaft*, that was completed during the war and is entirely regional, did not reach my hands until this book was complete. Similarly, in the actual writing of the book I have deliberately not made reference to De Martonne's *Europe Centrale*, which will surely be far more accessible to the English reader than German works. Thus, my work is drawn almost exclusively from German sources. It is based on an extensive bibliography, field studies, and the standard German topographic map series. By far the most useful map, with almost complete coverage of Germany, is the map of the *Reichsamt für Landesaufnahme*, on a scale of 1 : 200,000. This I have used as a base for the terrain and region maps, that form the framework of reference for the whole of this work.

Geography is an old-established field of study in Germany. Its modern development began with two of the great figures of German scholarship, Alexander von Humboldt and Carl Ritter, both of whom died in 1859, the one an explorer, scientist and diplomat, the other an "arm-chair geographer", a great bibliophile, and a distinguished Professor of Geography in the University of Berlin. The subsequent growth of geography was led by such men as Ratzel, Peschel, Von Richthofen, Hettner, Kirchoff, Supan, Köppen, Penck, and Gradmann. The active promotion of research on the geography of Germany commenced in 1882 with the formation of the Central Commission for Scientific Geography (*Zentralkommission für wissenschaftliche Landeskunde*). This was an informal organization with a central committee and six (enlarged to eighteen in 1921) regional committees. The objective of this commission was to "encourage, further and direct in every way geographical studies of Germany". A number of handbooks (*Handbücher der Deutschen Landeskunde*) that dealt with special aspects of the geography of the whole of Germany were published under its auspices. Many of the volumes planned by F. Ratzel, the chairman of the commission, did not appear because of lack of funds, but there appeared the *Geologie von Deutschland* by R. Lepsius, *Deutschlands Pflanzengeographie* by O. Drude, and *Die Gletscher der Ostalpen* by E. Richter. These general works were intended to serve as a scientific basis for more detailed studies of smaller areas. Ratzel encouraged the preparation of intensive studies of smaller areas, to be published as monographs, an aim that fitted in closely with the attention given to the study of the local area—*Heimatkunde*—in the teaching curriculum. It was to this end that the commission, in addition to encouraging such work and assisting its publication, sponsored the foundation of the *Forschungen zur deutschen Volks- und Landeskunde*. Founded by R. Lehmann, the first chairman of the commission, this series contains 171 separate works that fall into forty-five volumes. It is a veritable mine of information on the geography of Germany.

This tradition is now being carried on in large measure by the *Amt für Landeskunde*, that was established in April 1941. Dr. Meynen, its director, is now editing a record of current geographical work, called the *Berichte zur Deutschen Landeskunde*, the first volume of which appeared in 1941. He is also editing, with the co-operation of several colleagues, the research series that, since 1935, has been retitled *Forschungen zur Deutschen Landeskunde*. In addition to establishing a thorough bibliography and map collection of the geography of Germany, Meynen is organizing the preparation of detailed geographies of *Kreise*. These works are to be called *Kreisebeschreibungen*. Under the auspices of the *Amt* a threefold programme is being undertaken with the co-operation of geographers throughout western Germany. This includes a minute study of the natural units of Germany; a corresponding study of the agricultural units; and a study of the socio-economic units as a basis, among other things, for the re-definition of local government areas. All these maps are to be prepared on a standard scale of 1:200,000. The first study of natural units is complete and it is likely that by the time this book is in print a generalized map on a scale of 1:500,000 will be in print. My terrain studies, reproduced in this book, were drawn independently on a similar basis, and have very similar results.

During the war years German energies were directed to the waging of war, but it is remarkable that much academic work continued and that much geographical literature of outstanding value appeared in this period. This, indeed, was also the situation throughout the Nazi period. Many of the old masters have passed away in the last ten years—Braun, Friedrichsen, Hassert, Haushofer, Hettner, Köppen, Sapper, Krebs, Penck, Gradmann and Ule; younger men have died or were killed during the war—Geisler, Dörries, Schrepfer, Credner and Waibel. The geographers of today are reassembling their material, building their departments, and grappling with the problems of teaching a new generation of students with an outlook fundamentally different in many ways from that of the pre-war student. The content and approach of this book have been influenced throughout by the works and ideas of these men with whom I had much friendly contact in the 'thirties and whom it has been a pleasure to meet again during a visit in 1949. In particular I wish to express my thanks to Professors Carl Troll, Gotfried Pfeifer, Hans Mortensen, and Dr. Emil Meynen, for their kind hospitality and for many stimulating discussions. Dr. Meynen in particular has assisted in the collection of recent literature and we are especially indebted to his *Berichte* and *Geographisches Taschenbuch* for current material and information. Recognition and thanks are also due to Mr. Robert Hippert, my graduate assistant at the University of Syracuse, for help in the preparation of the maps.

The following guides are necessary in reading this book, especially as regards the detailed regional studies. A good atlas is essential. The best is the *Sydow–Wagner Methodischer Schul-Atlas*. If not available, the next best choice would be the *Schweizerischer Mittelschulatlas, Jubiläumsausgabe 1948*. If neither of these are accessible, then the *Oxford Advanced Atlas* has a map of Germany on a scale of 1:3 m. and this can be supplemented by the maps in this book. Second, it is essential to refer constantly to the ten detailed maps of Germany (post-1945) on a scale of 1:4 m. These are Figs. 4, 11, 12, 13, 18, 19, 27, 31, 54, 55. The student will find it a great help to enlarge the rectangles on Fig. 62 (scale 1:6 m.) to the same scale as these maps. On this same trace, the boundaries of the physical units (Fig. 13) may also be quickly drawn and this trace can then be superposed on the other maps in this series. Third, we mention the detailed series of terrain and region maps. These are on a scale of 1:1,250,000. These sheets are the rectangles shown on Fig. 62. In order to make each of these maps more intelligible, the terrains may be shaded or coloured as follows: 1, 2, 3–4, 5 (leave unshaded), 6, 7, 8–10, 11, 12. Finally, in Part VI we have indicated the population of the towns in brackets after their names. The figures are in thousands, for 1939 and 1946. We have used the 1939 figures for the small towns with under 50,000 people. Illustrations are taken from E. Diesel, *Das Land der Deutschen* and Von Creuzburg, *Kultur im Spiegel der Landschaft*. The sections of fourteen sheets of the 1 : 100,000 series (*Karte des Deutschen Reiches*), shown on Figs. 108–121, were kindly selected by Dr. E. Meynen, head of the *Amt für Landeskunde*.

Several German works have appeared since going to press that are of great importance in the regional geography of Germany. These are H. Bobek, *Südwestdeutsche Studien*, H. Blume, *Das Land Hessen und seine Landschaften*, and O. Schlüter, *Die Siedlungsräume Mitteleuropas im frühgeschichtlicher Zeit*, publications in the *Forschungen zur Deutschen Landeskunde*; and W. Müller-Wille, *Westfalen*, Münster.

ROBERT E. DICKINSON,
Syracuse, June, 1951.

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INTRODUCTORY

CHAPTER I

INTRODUCTORY

THE PROBLEM OF GERMANY IN ITS GEOGRAPHIC ASPECT

ONE OF the greatest problems of the German peoples has been described by an unbiased German writer[1] as the eternal search for their national being. "The German loves to probe and feel around intellectually in the stupendous thing that Germany is; and he specially loves to work with vague and indefinable terms, such as nationality, culture, race, Prussianism, soul, essence, Germanity, etc., and then to wield these with the utmost dogmatic violence, as though those who are unable to make much of such nebulosities were either unpatriotic or uneducated. People are never tired of asking whether a nation is a community held together by fate, or by necessity, or by a sense of values, or what not; they are never tired of enquiring as to the significance of language, race, nationality or state, *per se* and in relation to this or that within the nation or state.

A good deal of the national heart-searching is wasted in this endless game of question and answer, in order, it is supposed, finally to strengthen the foundations of German nationality for the maintenance of its national character. There is no other country in the world in which there are so many contradictory formulas. The nation is, according to taste, a mythos in which the individual is of no significance whatever, or an economic community held together purely by self-interest."

The problem of the unity of the German-speaking peoples, however, is not only an academic problem; for it has long been a first-class political problem to which the intellectuals have made outstanding contributions since the beginning of the great nationalistic movements of the early nineteenth century.

There have long been two schools of thought concerning the future of the German peoples in Europe. On the one hand, there are those, like Eugen Diesel, who regard Germany as a "land without design", without unity in its physical build and lacking clearly defined natural barriers as its frontiers, and without unity in its historical development or unity in its national aspirations. On the other hand, there are those who regard Germany as united by a single great design—of physical build, in spite of the absence of clearly defined natural barriers to frame

[1] Eugen Diesel, *Germany and the Germans*, 1929, translated by W. Robson-Scott, 1931.

it, of language, and of culture; and who maintain that these common ties, within a culture realm which is so markedly different from all others, far outweigh the contrasts in the national peculiarities of its component peoples.

Much was done after 1871 to effect the unity of the German peoples within the Second Reich and it is this one fact that has disturbed above all else the political equilibrium of Europe. The Nazi regime still further strengthened this unity within the bounds of the Third Reich. It also sought to extend the political hegemony of the Reich beyond its 1918 frontiers over all the German peoples who lay on its periphery together with those non-German peoples who for long had had close historic associations with the German group of states. These plans for expansion in the economic sphere were extended to southeastern Europe in particular. With different methods and a shift in objective this was essentially the same trend that led to the war of 1914. Since the defeat of Hitler's regime the Germans have been at the mercy of their conquerors. They have also been expelled from lands in the east that they have occupied for centuries and have moved west and piled up in the occupied zones of Potsdam Germany, where there was in 1946 a population of 65 millions as compared with 59 millions in 1939. We should always remember, however, that there are still as many German-speaking peoples as before the war, and even though it may be claimed that their aspirations and policies count for little in their defeat, they cannot be "suppressed" and, in some modified expression, they must be incorporated into the life of a new Germany in a new Europe. Moreover, the productive power of the pre-war Reich in terms of resources, if not of equipment, is essentially the same in its potentialities as in 1939 and in its indispensability to modern Europe. The problem of Germany and the Germans still remains, the more so through disruption, and this time it is for the victors to solve it.

Germany is shrunken, both ethnically and politically, and it is divided not only among the occupying Powers but also among a number of new constituent political units that these Powers have instituted. A federal Germany, economically productive and militarily weak, but with its members acting within the comity of European peoples, seems to be the main objective of the Western Powers. But the unification of the Western Zones with the Russian Zone seems to recede further each day, and the expulsion of the Germans from the eastern provinces of the Reich and their replacement by Poles is a *fait accompli* which probably not even another war would reverse. The attitudes of France, Britain, the United States and Russia to the German problem differ in various fundamental ways and it is only likely that these attitudes differ from those of the Germans themselves, in so far as they have yet crystallized.

It is essential, therefore, that we understand the permanent facts behind the problem in both its German and European aspects.

The German problem arises from three basic facts: first, the unity of the German peoples; second, the diversity of the German peoples; and, third, the peculiar geographic situation of their country, that is embedded in the heart of Europe (Fig. 1).

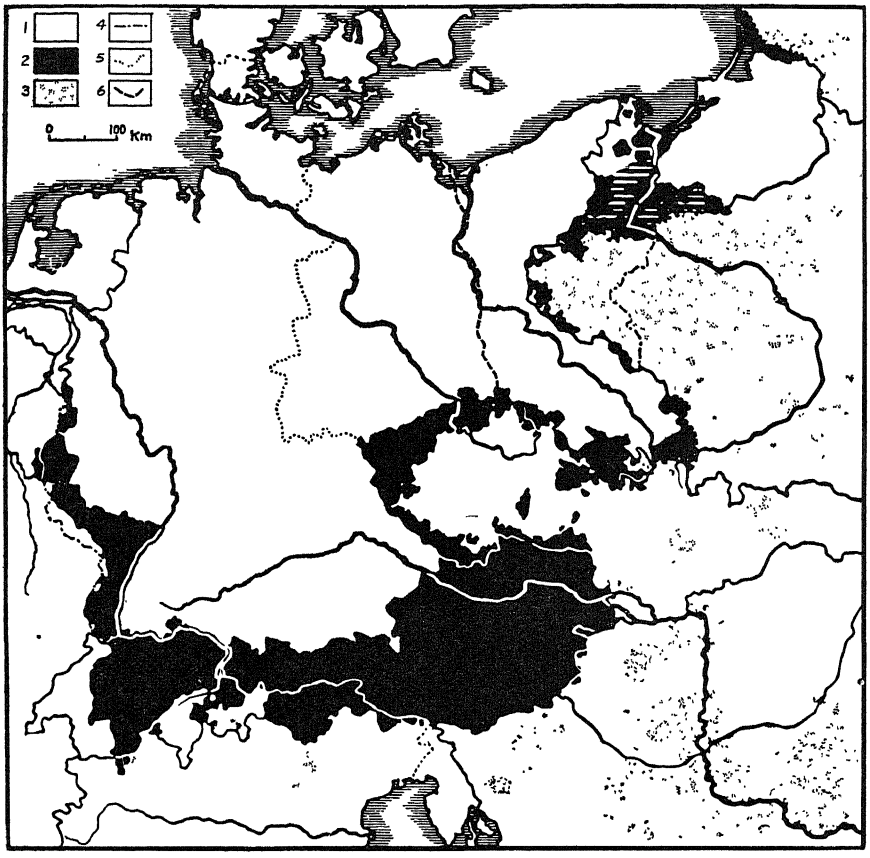


FIG. 1—THE GERMAN LANDS (*from Meynen*) (Scale, 1 : 12 m.)

1. The German Reich, 1937
2. Areas of German-speaking peoples outside the Reich Frontiers
3. " Islands " of German speaking peoples
4. Frontiers of the Reich in 1914
5. Frontier between the West and East German Republics
6. Eastern frontier of Potsdam Germany

The problem of the unity of the German-speaking peoples arises from the diversity of their cultural and political experiences. The German peoples form an ethnic group that is united by the ties of a common literary language, a common cultural heritage, and a large measure of

common history based on close political associations in peace and war through many centuries. The German tribal groups who settled in western Germany were organized under the First Reich with its beginnings in the coronation of Charles the Great in A.D. 800. In spite of its chaotic disintegration in the Middle Ages, the Reich continued as a medium of tenuous association and as a source of common disputes until its dissolution in 1806. During the nineteenth century consolidation was effected under the leadership of Prussia and this resulted in the emergence of the Second Reich in 1871. The peoples of western Europe were welded into unified nation-states in the Middle Ages, but Germany was divided into nearly four hundred independent authorities until 1815. Their number was then reduced to a tenth, but even these retained their sovereign independence under the tutelege of Prussia until they were reduced to the status of administrative provinces by Hitler.

The unity of the Reich was strengthened by the remarkable social and economic changes in the generation from 1870 to 1914, during which period Germany became the strongest single state in Europe with ever closer economic ties with her neighbours, ties that became as essential to these neighbours as to Germany herself. Political expansion was largely dictated by economic necessity as well as by the desire to achieve the unity of the German peoples and restore the hegemony of Germany over the historical provinces on its borders that had fallen from the German realm.

The German peoples and the German State thus form a loosely knit and elusive realm that was consolidated under Prussia, and has been more closely welded by the unification of the Reich since 1871 and, in further measure, under the Nazis. To this vaguely defined realm the name of *Deutschland*, German land, has been given for several centuries, although it was never used as an official political title until the nineteenth century. Cultural, economic and political associations have fluctuated from time to time. The State of 1918 had Germans immediately beyond its borders in other states, to the east, south and west, in Poland, Czechoslovakia, Austria, Switzerland, France and Luxembourg. The realm, however defined, lies in the heart of Europe, surrounded by non-Germanic peoples—Dutch and French to the west, Slavs and Magyars to the east, Italians to the south, Poles and Czechs to the east, Danes to the north. From these peoples and states it is not separated by clearly defined natural barriers, but by wide zones of contact.

Within this major German realm, however, there is a great diversity of peoples that has persisted at a political level until our own day. As elsewhere in western Europe, the initial tribal groupings formed the framework in which there developed, in the Middle Ages, distinctive cultures, whose manifestation in dialect, customs, temperament, farm, and town,

are living items of the cultural heritage. These were never destroyed by the chaos of political divisions that split up the lands and peoples for six hundred years.

This diversity is based, however, not merely on the distinctive culture heritage of the main tribal groups. It derives also from the diversity of the lands; from the lack of a natural focus comparable with that of Paris and London in the historic period; and, in consequence, from the diversity of culture contacts that were able to penetrate the German realm. These external culture contacts were also associated with the outside political associations of the German realm, and with the diversity of its dynastic associations. The Habsburgs had their place of origin in southwest Germany; the Hohenzollerns had their seat in the Main Valley but they early became the rulers of Brandenburg and the founders of Prussia; the Hanoverian rulers were closely allied with England in the eighteenth century.

The German Emperors also found themselves deeply involved, in the Middle Ages, in the affairs of northern Italy, whence they derived their title and powers. The Italian wars and the long disputes with the Papacy dissipated the time and energies of the Emperors, and distracted their attention from the consolidation of their territories north of the Alps. Gustavus Adolphus of Sweden in the seventeenth century was able to control the mouths of the Oder, the Elbe and the Weser. French cultural influences were strong during the eighteenth century, especially in the Rhineland. The country was overrun and subdivided by the armies of Napoleon and Russia. It is now overrun and controlled by four foreign Powers, and the Germans in each occupied zone are being thoroughly indoctrinated in a variety of ways in the way of life of the occupying Power. Deep and fundamental are the different forms of "culturation" in the French, British, American and Soviet Zones.

There was also a broad cultural division within the German lands. The main seats of medieval civilization lay in the Rhinelands, which from the outset were deeply penetrated by contacts with Roman civilization. The Saxons were esconced in the lands to the northeast between the Harz mountains and the Elbe, where they developed a culture and a political dynasty far removed from Roman contacts, and in this same general area the Hohenzollerns built up Prussia from their nucleus in Brandenburg. It was not until the nineteenth century that Berlin became the dominant political focus of the new Germany, displacing the old-established cultural centres in the Rhinelands.

The third basic fact of the German problem is that the country lies in the heart of Europe and is bordered by nine states from which it is not separated by natural barriers and across whose frontiers are to be found peoples of German speech. The strategic significance of this fact

obviously depends on the unity, strength and the policy of the German State.

During the last hundred years the loosely knit group of German peoples and states, to which the term Deutschland has been given through many centuries, has become a closely knit state. This state during the short span of forty years became the greatest economic power in Europe. In place of the historic Germany of poet and philosopher there rapidly emerged the modern Germany built upon coal and iron, a rival to the nineteenth-century supremacy of Britain. As a great manufacturing nation with a rapidly growing urban population Germany became increasingly dependent on imports of raw materials and foodstuffs, and made increasing demands on foreign markets as outlets for its manufactured goods. The neighbouring countries also became increasingly dependent on Germany. Such ties demanded freedom of movement of goods and peace among the members of the German fraternity of states. But there was also the military aspect of the situation. Germany became economically and militarily strong under Bismarck. Economic growth demanded expansion of markets, not merely in Europe, and particularly in the lands to the east, but also in the backward tropical lands overseas. This need and ambition brought strategic demands and military and naval expansion. Three times in one lifetime Germany has made war—1870, 1914 and 1939. The first time she humiliated France and acquired Alsace and part of Lorraine. The second time she met with ultimate defeat. The third time has spelled defeat, occupation and chaos. The tables have been turned since the mid-nineteenth century. Germany's central position in the heart of Europe became not merely a source of military weakness to herself, but also a threat to her lesser neighbours. And yet the paradox of the situation is that in order to maintain their pre-war standards of living, let alone to raise those standards to the minimum level of contemporary dietetic demands, all the smaller countries of Europe are dependent on a productive and prosperous Germany.

The geographic situation of Germany in the heart of continental Europe involves the state in intimate relationships with the lands and peoples to the west and to the east. Moreover, especially since the development of its modern economic structure and its increasing interest in overseas markets, it has sought sea-outlets. The North Sea frontage afforded possibilities for the emergence of great ports, that have been exploited by both the free cities of Bremen and Hamburg as well as by the State of Prussia. From a military point of view, the German navy had its principal field of operations in the North Sea. The British navy was able to bar, more or less effectively, the outlets through the English Channel and the outlets northwards from the islands that lie between

Scotland and southwest Norway. To the Germans the North Sea is the *Deutsches Meer* and the entrance to the combined estuaries of the Elbe and the Weser is the *Deutsche Bucht*.

Germany lies astride western and eastern Europe and the *Drang nach Osten* has been a dominant theme in German history. Sir Halford Mackinder divided Europe into the western coastlands, that can be controlled by sea-power, and the continental interior, that can be controlled by land-power. He drew the divide between the two from the Dardanelles across the Balkans to the head of the Adriatic, thence north through Austria, Bohemia, east Germany and Jutland, across the Kattegat, and thence north between Norway and Sweden. At the Dardanelles and the Sound eastern land-power can bar access to western sea-power. A great transitional zone lies between these coastlands and the upper Volga basin, the historic core of land-locked Russia. This zone, with its diversity of peoples, has been subjected through history, in peace and war, to both western and eastern (Russian) influences. It emerged as a belt of new nation-states in 1919. The last phase of German dominance in this zone has now been superseded by Russian dominance. The divide noted above is now the Iron Curtain between the Western Powers and the Soviet and its central European satellites. It divides Germany proper into a west and an east, along an age-old historic divide, between which there are deep-seated contrasts in people, history, and economy.

This is a broad view of the problem of Germany. We may now briefly examine how geography can contribute to its elucidation. Geography is concerned with the regional differentiations of the earth's surface. It studies regional groupings of society in their relations to the lands they occupy. Thus, we may turn at once to several concepts relevant to our theme.

The natural terrain is the basis of human occupance. Its traits may be abstracted from the geographic landscape, but do not occur in their primitive condition except in areas untouched by man. Such areas are few in Europe, and it is difficult indeed to determine their characteristics (especially in terms of vegetation cover) exactly, so that the depiction of the existing natural conditions amounts to abstracting these traits as at present from the present landscape. Detailed analysis of any small area in England and Germany in the course of a day's march reveals that there is the closest local adjustment of human occupance to the natural conditions. The pattern of human occupance is most complicated in urban areas and their areal differentiations are primarily based on function not on natural terrain. The natural conditions, in other words, are usually the most important correlatives of local associations of human occupance. This concept is not in any sense deter-

ministic. Minute unit areas with similar natural conditions may have similar or quite dissimilar modes of human occupance. But if the fabric of human occupance coincides with a set of terrain conditions then clearly we have a certain measure of harmony between the two, the chief local correlatives of which are the latter. On the other hand, there are many areas with similar terrain conditions which exhibit a lack of coincidence of the human with the natural fabric, and this disharmony is clearly due to the operation of overriding human forces.[1] Any geographical study therefore must begin with the accurate appraisal of the natural terrain and its areal variations before proceeding to the study of human occupance.

The natural or physical unit so defined serves as a framework, in either detailed topographic facets or in major areas, for the study of the mode of adjustment of the activities and organization of Man on the Earth. It is the "site" on which human groups, ever changing in their activities, organization and equipment, adapt themselves in varying ways to both the physical conditions and to the man-made environment that is bequeathed to them by their predecessors and is in constant process of change. In establishing working relations to the land man modifies the natural terrain to meet his needs. The transformed environment is made up of a mosaic of *form units*. These are unit areas of the geographic landscape, considered as to its separate elements—relief, vegetation, land use, settlement—and in various combinations. Human groups, economic, social and political, are arranged into *functional units* or entities that either correspond in their smallest detail to a single form unit or to an association of sections of several form units. Human society is organized into areal groups at all levels from such units or cells as the farm, dwelling and factory, upwards to groups of a social, economic, political and cultural character. It is only in terms of these human functional groupings that the character and areal interrelations of the elements of the landscape become understandable.

The summation of man's varied relationships with the land is reflected in his distribution on the land. This refers to the people themselves, the buildings in which they live and work, the fields which they till, the quarries in which they exploit the resources of the earth's crust, and the routes on which they move. The density and the modes of grouping of human societies on the earth's surface is another way of expressing the density and distribution of their settlements. It is necessary to sepa-

[1] There is a subtle distinction here in the German geographical terminology between *Naturlandschaft*, which refers to the land before touched by man, and the *Naturraum*, which refers to an area (not a landscape) defined, as an abstraction, through the coincidence of certain existing physical or natural conditions. Similarly a *Kulturlandschaft* refers to the totality of a visible geographic landscape which is everywhere deeply transformed by human occupance: whereas a *Kulturraum* simply refers to an area in which certain selected human phenomena have a coincident distribution.

rate the urban populations, who live in compact settlements, arranged at small spots of the whole of the earth's surface, from the rural populations, who live and work on the major portion of the land surface. Difficulties arise here in concept and presentation, since there are industries in rural areas and urban workers who live in the country.

This whole problem of mapping and interpreting the distribution and density of population and settlements is a basic theme of all geographical work and requires much detailed thorough analysis of small areas as well as the presentation of major characteristics and issues. It would demand mapping Germany on a scale of at least 1 : 200,000. The interpretation of such patterns rests on such major considerations as the amount of land under cultivation, and the character and intensity of cultivation of the soil, i.e., the modes of agricultural occupance of the land. Laws of inheritance, migratory movements of all kinds, the balance of birth and death rates, in their detailed and general areal variations, are other factors in this equation. Then, again, one must consider the proportion and geographical distribution of the people who are engaged in industry, commerce and administration. These are mainly concentrated in towns (and it is for the geographer to determine at the outset just in what combinations and degrees), but they are also distributed over the countryside in varying ways from one area to another, and these facts depend as much on historical development as upon present function. All these are facets of the general picture of the distribution of man and his settlements on the face of the earth and require thorough appraisal in any geographical study. These paragraphs we feel are essential as an introduction to this book, since they indicate the conceptual framework upon which it is based.

In turning to the study of Germany, the geographer, since he studies the ways in which man occupies the land, at once asks some basic questions. What is the nature of the various aspects of the unity of the German people and in what respects, therefore, do they form a geographic entity in Europe? What areas do they cover? What relation do these areas bear to each other and to the detailed articulations of the natural elements of the earth's surface, as well as to man's imprints on that surface? Clearly, such questions cannot apply only to the geographical fabric of the German realm (however defined) as a whole. They demand analysis of the parts of which the whole is composed in its varied aspects, of the variations and interrelationships of human groups on the land, and of their relations to the detailed features of the environment and the habitat. What, then, is the detailed fabric of natural units? What are the detailed associations of social, economic and political units? What effect do these associations have upon the mode of distribution of the people and of their settlement on the detailed fabric of

natural units? Into what more general, larger entities may Germany be divided on the basis of each of these sets of man–land relationships? Such questions are the essence of the geographic approach in the study of any part of the earth's surface. It is an approach, therefore, that should throw light on the nature of the problem of the diversity and the unity of the German peoples and of the German lands.

In conclusion, it must be emphasized that there is a fundamental contrast between the so-called "historic Germany" of the poet, the musician and the philosopher, the craftsman, the peasant, and the serf; and the modern Germany of large-scale industry and specialized agriculture, directed in large measure to the feeding of specialized producers, who are crowded in industrial occupations in urban agglomerations, or who combine the cultivation of the land with an industrial occupation either in their home or in the factory. Germany just before the advent of the railway and the unification of the Reich in the mid-nineteenth century was little different from the medieval Germany that in turn grew out of the settlement of the Germanic tribes. Revolutionary changes were quickly effected, however, in a generation. The character of human groupings and their relation to the land can only be appreciated, therefore, in terms of the sequence of human occupance in these lands and in terms of the mode of man's adjustment to the physical environment, and his transformation of it according to his social, cultural, and economic development.

At the outset, we must make it clear with just which Germany we are concerned, for there is the "historical" Germany, there is the "ethnic" Germany—the area occupied by all the German peoples—and there is the "political" Germany. In the political sense there is the Germany of 1914, of 1938, and there is the post-war Germany. This last may be taken as the Potsdam Germany with its pre-war boundaries to the north, west and south almost intact, but reaching eastward only as far as the rivers Oder and Neisse. This is the Germany that is occupied by the four Powers, Britain, France, the United States and Russia, from which, since the four Powers have so far failed to agree on the method and substance of a unified Germany, there have emerged two new federal states in the four zones of occupation, one in the west and the other in the Russian Zone in the east. (Fig. 1, p. 4.)

In our treatment, we have two objectives that run right through the work. The first is to examine the pre-war Germany as a whole and in its varied relations with the surrounding lands and peoples of central and western Europe. The second is a more detailed appraisal of the geography of the lands of Germany. For this latter purpose we have given main attention to the post-war or Potsdam Germany east to the Oder–Neisse frontier.

In its arrangement, the book falls into six parts.

Part I deals with the German lands. It examines the main components of the physical environment—namely, the land forms, climate, vegetations and soils—and concludes with a summary of the natural physical units that make up the west German lands.

Part II deals with the German peoples—their growth and spread in central Europe, and the distribution of the population.

Part III deals with the habitat of the German peoples—field, farm, village, and town.

Part IV deals with the modern economies in their areal variations—agriculture, industry and commerce, as they have developed during the last century out of the background of the "historical Germany". A concluding chapter deals with the foreign trade of Germany, with particular emphasis on its trade with the surrounding European states.

Part V deals with the modern political geography of Germany. It contains discussions of the ethnic traits of the German peoples; their politico-geographical groupings; and of regionalism in Germany. This section concludes with a chapter on geographical aspects of post-war trends in Germany.

Part VI contains twelve chapters on the regional geography of Germany, in which the various aspects discussed in the first four parts are synthesized in each major regional division. Attention is here focused on the description and interpretation of the town and countryside. Its basis is a series of maps prepared on a scale of 1 : 200,000. This part covers almost one-half of the length of the book.

Part I

THE LANDS

Für die Geographie wird immer das wichtigste bleiben, die Erdoberfläche zu erforschen, zu beschreiben und zu zeichnen.[1]—Friedrich Ratzel, 1882.

[1] The main purpose of Geography will always be to investigate, describe, and map, the surface of the earth.

PART I

THE LANDS

IN THESE first chapters we shall portray the lands of Germany in general and of western Germany in particular. Surface relief, climates, soils and vegetation are the "natural elements" of the human environment. They are causally interrelated and the minutest areas in which they coincide are therefore natural terrain or "site" units. But such units are abstractions, since the greater part of the face of Europe has been modified by man through his labour and by the addition of his works at different epochs in his history. Such natural conditions may be projected back to the time before man had appreciably affected the surface of the lands as provide by Nature. This is referred to by geographers as the "natural landscape". It is, however, always a problem to decide just how and when man began to change the natural conditions. This applies above all to the vegetation, which has been profoundly changed by man from Neolithic times onwards. If one is to use the term "natural landscape" at all in Europe it must apply to a specific time and the time that has been selected by German scholars for this purpose is the period immediately preceding the great phase of forest clearance, the *Rodungszeit*, that began with the settlement of the German tribes in the middle of the first millennium of this era and continued into the late Middle Ages. It is in this sense that we use the term "natural landscape" in this book.

The natural landscape of western Europe has been transformed throughout the period of human occupance through the changes of man's economic, social and political activities and organization. This transformed landscape, that is the embodiment of a long period of historical development, is called by English-speaking geographers the "cultural landscape". It would be better described as the geographic landscape, since it combines both the natural elements of the terrain and the cultural elements added by man through the modifications of natural features and through the addition of man's works.

Now, it is of particular interest that in Europe there is a remarkable adjustment of the detailed patterns of the cultural elements to the natural elements of the geographic landscape. In other words, if a systematic attempt be made to analyse the detailed patterns of the geographic landscape it will be found that the predominant elements in the com-

posite character of the landscape are the natural or physical elements. The minute variations of the mosaic of cultivated land, settlements and routes, fit closely into the minutiæ of the natural framework of the terrain, in spite of the numerous man-made patterns of the landscape that cut right across various terrains. This, we repeat, is not a deterministic approach. It is simply a statement of fact that can be demonstrated by a comparison of the distribution of the natural elements with the human, either in an area such as western Germany as a whole, or in a minute section of that same area within a few square miles. The intimacy of this adjustment of human activities to the physical environment in western Europe is a fact that demands closer attention on the part of governments and individuals in the lands of relatively recent settlement in the New World, where the idea has held sway for some time that the technical abilities of man permit the exploitation of the land irrespective of the demands of Nature. No matter how elaborate or simple its structure, human society is always tied to the terrain or site, and all societies, in a myriad ways, must establish working relationships to the lands which they occupy.

Alps and Carpathians. Cross hatching shows areas above 6,500 ft. and vertical lines areas below 6,500 ft.

The Alpine Foreland Sections are numbered as follows:

1. Saone Lowland (between Morvan and Jura)
2. Swiss Plateau
3. Bavarian Plateau
4. Moravian Lowland
5. Galician Plateau

Central Uplands (*Mittelgebirge*). Horizontal lines show the plateau blocks. Barbed lines show scarped ridges or plateaus, the line being the scarp face. Enclosed lowlands are indicated as follows:

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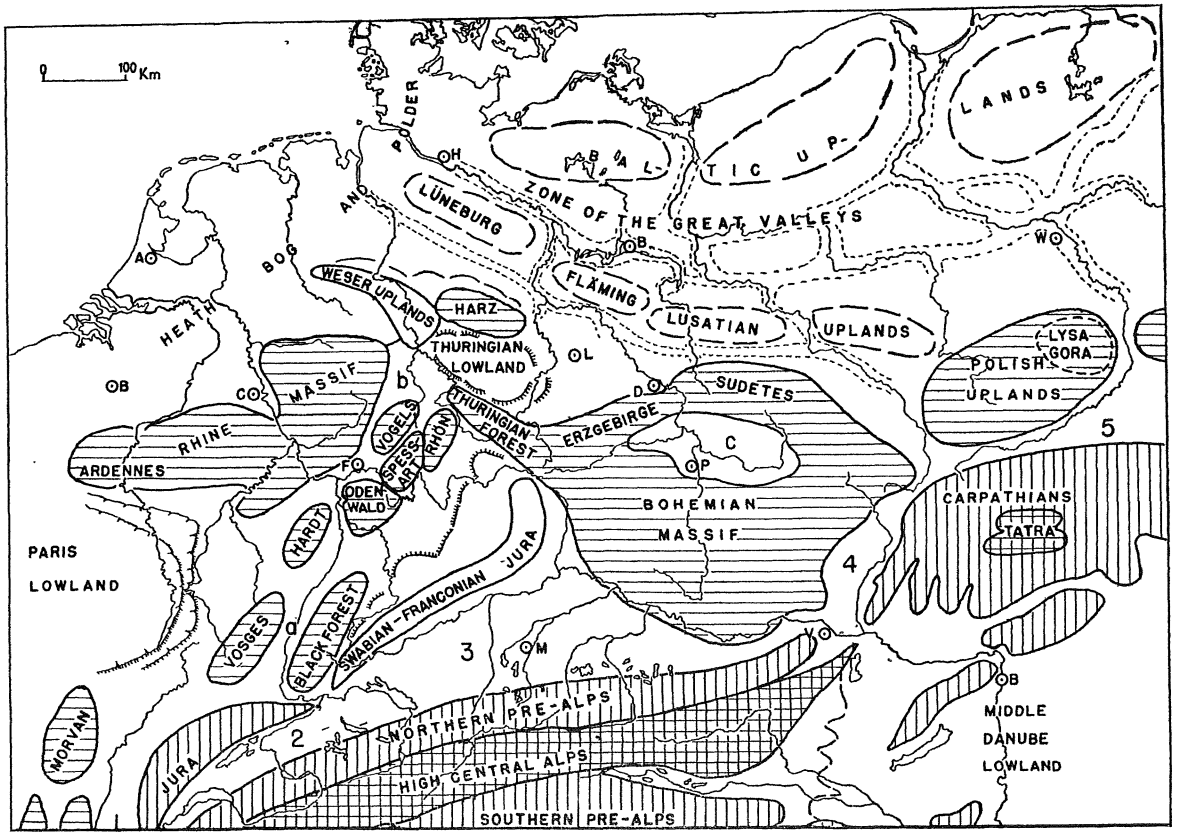


FIG. 2—CENTRAL EUROPE: RELIEF (scale, 1 : 10 m.).

CHAPTER 2

RELIEF

THE DEVELOPMENT OF THE LAND FORMS

LAND FORMS in general and in their smallest facets can only be understood in terms of the character and disposition of the rocks and of the processes by which land forms are moulded. We must understand the natural elements of the land in order to evaluate their significance in terms of human occupance. This, however, demands a thorough knowledge of the geology and of the geomorphological processes in order to evaluate and understand the detail of the terrain—slopes, rocks, water supply, soils and natural resources. The geographer must understand the large-scale geological map and the geological sequence and he must be able to apply the detailed map of outcrops to the interpretation of the terrain. Thus, even in this work, the student, though not a geomorphologist engaged primarily in the study of processes, must be familiar with the geological history of his area of study in its bearing on the present landscape and in its bearing on the changing character of the sequent occupance by man. It is an essential part of his equipment. Plunged into a regional study of a major land area or, still more exacting, into a study of a small area, without this equipment, he would be completely unable to evaluate the area as a habitat for man. The empirical approach is essential but inadequate as a means of evaluating the terrain and the interrelationships of the natural features associated with it. The following presentation is essential therefore to the understanding of the surface features of the German lands and the changing character and patterns of man's activities in these lands. The detailed geological time scale is given on p. 50. General relief features are shown on Fig. 2.

There have been several periods of mountain building in Europe, and two of these affect the present physiography of Germany. Towards the end of the Carboniferous period the sedimentary rocks, such as grits, limestones and shallow water coal-measure deposits, were intensely folded within the earth's crust and then uplifted to form great mountain ranges.

a. Upper Rhine Plain
b. Hessian Lowland
–. Thuringian Lowland (named)
c. Upper Elbe Lowland (Bohemia)

Northern Lowland. Heavy dashed lines enclose uplands. Light dashed lines enclose the great glacial troughs.

Circles with letters refer to the chief cities.

Note. The Swabian-Franconian Jura is scarped on the north side.

These stretched right across central Europe from western Ireland and Spain. Granites were involved in this folding and other rocks were transformed by great heat and pressure to form schists, slates and gneisses. The granites in particular formed the uplands of highest altitude, while in downfolds or synclines on the northern borders of the mountains, coal measures have been preserved from erosion, as in the basins of Britain, northern France and Belgium, southern Limburg, the Ruhr, several small fields on the northern edge of the German section of the Central Uplands, Upper Silesia and south Russia. Small fields also occur in scattered downfolds, where the coal has been preserved from erosion, as in the Saar and a number of very small fields around the Central Massif of France. These foldings are referred to by geologists as Hercynian, a name derived from the old German name for the forested lands of central Germany.

The Central Uplands are the roots of these mountains that were subjected to erosion by water, air and ice throughout the Permian and Triassic periods of the Mesozoic Era. The mountains were eroded to fairly level surfaces called *peneplains*. The seas transgressed over sections of these lowlands and, particularly in the Triassic period, there were laid down three massive series of deposits of sandstones, limestones and marls, in that chronological order. Hence the name Triassic as used by geologists to designate the three main groups of differentiated strata. These groups are referred to generally as Bunter sandstones, Muschelkalk (coarse limestones), and Keuper marls. Even more extensive marine transgressions took place during the Cretaceous period, the very name of which indicates the predominance of chalks that were laid down in deep sea waters. But there are also shallow water deposits in this series, especially in the Lower Cretaceous period. These include alternating layers of soft sandstones and clays. During the Upper Cretaceous period there occurred the greatest marine transgressions of all time, when almost the whole of the existing lands were submerged.

The great Hercynian land mass, with its isolated islands and extensive shallow seas, was bordered to the south by a great ocean trough or "geosyncline" on the site of the present Mediterranean Sea and the lands that border it. Deposits of great depth were laid down in this trough, and these were then crushed by the second great mountain-building forces. These began in the middle Tertiary period and continued throughout Oligocene and Miocene times. Thus the rocks in this great geosynclinal were folded and crumpled and outthrust northwards, jammed, as it were, in a vice between the relatively resistant blocks of the Hercynian massifs and the great resistant block that made up most of Africa. The Hercynian blocks, subjected to great pressure by this folding from the south, behaved like resistant paving-stones. Some were heaved up as

blocks, and fractured along lines called faults, so as to form uplands, like tilted paving-stones, and sunken troughs, called respectively in German *Horst* and *Graben* (English, Rift).

Vulcanicity accompanied these earth movements. Massive volcanoes rose from the plateaus whose surfaces were often blanketed by extensive lava flows, as in the Central Massif of France, and in the Rhön and Vogelsberg in central Germany. The uplands we see in these areas today are for the most part the eroded ruins of these volcanic outpourings. Crater lakes, craters and residual volcanic plugs, stand out from the lowlands of softer, eroded rocks, and level lava floors occur in many parts of the Central Uplands.

Finally, the horizontal sediments that lay on the old peneplain were gently folded or rippled, like those that make up the whole of south-eastern England. Similar "structural lowlands", formed by the subsequent differential erosion of these strata, are to be found in the Central Uplands, enclosed by the higher uplifted blocks that are remnants of the Hercynian mountains.

Especially distinctive in Germany is the so-called Saxonian Folding (*Saxonische Faltung*) that affected the Mesozoic and, more especially, the Cretaceous strata on the northern border of the Hercynian land mass. This folding commenced in the Upper Jurassic and continued right to the Miocene. It resulted in the steep autochthonous folding of anticlines and synclines, which, through subsequent differential erosion, yield either the kind of relief associated with the Weald or an "inverted relief" in which the hard rocks of the synclines stand out as ridges with outward-facing scarps. This structure is particularly characteristic of the northwest Weser Uplands and the northern foreland of the Harz. These folds, trending northwest and southeast, have the same direction as the faulted highlands of Thuringia, and both originated in mid-Tertiary times.

After the Tertiary earth movements, marine transgressions were negligible. Throughout central Europe this Pliocene period was predominantly a period of erosion and secular uplift. Many of the features of the Alps—the concordant summit levels of its peaks and passes—and many peculiarities of its river valleys, reflect periods of great uplift, oscillating with periods of subsidence. Through such uplift the rivers were "rejuvenated" and acquired renewed cutting power. The gently folded rocks of the lowlands were eroded so that the harder limestones and sandstones formed scarps with more gentle "dip" slopes, and the softer rocks of marls and clays, intercalated with each other, were eroded to form lowland vales. Rivers and atmospheric erosion stripped the highlands bare of their sedimentary covers and thus there were revealed the rounded outlines of the granites and Paleozoic rocks of the "fossilized"

(that is, the hidden and preserved) pre-Cretaceous peneplains. The rivers carried down their loads to the lowlands where detrital deposits accumulated.

After the uplift of the Alps, a great trough or geosyncline extended along their northern side, occupying approximately the site of the present Swiss and Bavarian Plateaus. In this trough there were laid down great masses of gravels and coarse sands by the Alpine rivers, and these now form sandstones and conglomerates (*Molasse*) that form the basis of these areas, although their smooth relief is often concealed by masses of morainic material that have been deposited by glaciers from the same source. Some of these mid-Tertiary sediments were involved in the latest Alpine foldings, and crumpled and uplifted to form mountain masses such as that of the Rigi near Lucerne in Switzerland.

The Rift Valley in southwest Germany, that lies between the two horst blocks of the Black Forest and the Vosges, was filled with thousands of feet of alluvial detritus in a basin that was evidently continuously sinking. The rivers Rhine and Meuse on issuing from the northern edge of the Central Uplands built up enormous deltas of gravels, that have been cut up subsequently by the later river courses as the old deltas were slightly uplifted. Such delta gravels form much of the surface of northwestern Germany, Holland and Belgium. Erosion and deposition in a long period of alternating uplift and subsidence, with the former generally by far the more important, characterize the Pliocene and Pleistocene periods, when the major physiographic features of our lands took their present form.

Yet another great event, however, was to affect these lands and determine their surface features over extensive areas (Fig. 3). This was the great Ice Age of the Pleistocene period. A great Ice Sheet, comparable to that now covering Greenland, covered Scandinavia and spread southwards across the site of the North and Baltic Seas to the lands beyond them. At its greatest extent it covered all north and central Russia south to a line from Kazan to Kiev, almost reached the foot of the Central Uplands, stretched westwards to the lower Rhine (across central Holland), and covered the British Isles south to a line from London to Bristol. At the same time, glaciers filled the valleys of the high mountains to the south, in the Alps and the highest sections of the Central Uplands.

It is from the study of the Alpine valleys and their deposits that the detailed history of the Ice Age has been unravelled.[1] There occurred

[1] The great pioneer work here was that of A. Penck and E. Brückner, *Die Alpen im Eiszeitalter*, 3 volumes, 1901–9. They recognized four periods of maximum ice extensions in the Alpine area which they described as the Günz, Mindel, Reiss and Würm phases, each of these being separated by a relatively mild interglacial period during which the fronts of the valley glaciers retreated. They also established minor cold phases as fluctuations at the close of the Ice Age.

three periods of greater severity of climate. Between these phases there were two periods of less active glaciation, when the ice front and the snouts of the valley glaciers retreated. At the halting phases, great masses of morainic rubble were laid down. As the ice retreated, the underlying

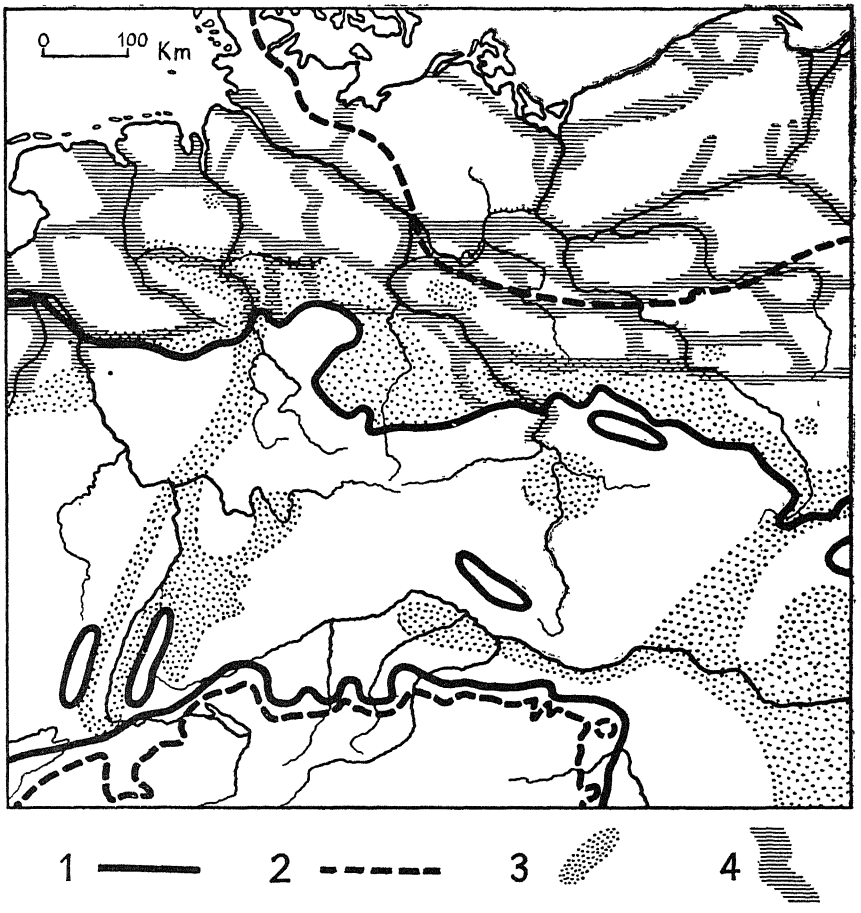


FIG. 3—CENTRAL EUROPE: LIMITS OF THE ICE SHEET (scale, 1 : 12 m.)

1. Elster and Riss-Saale Phases
2. Vistula-Wurm Phase
3. Loess
4. The glacial troughs (Urstromtäler)

beds of morainic rubble and loams (boulder clays) were left *in situ*. The melt-waters were carried westwards in what now appear as great valley troughs (*Urstromtäler*). Thus, ill-assorted and unconsolidated deposits of clay, gravel and sand, partly glacial and partly laid down by rivers underneath the ice and beyond its terminal moraines, characterize the areas that were formerly covered by the great Ice Sheet. In the Alps, in

particular, the valley glaciers spread out to the plains beyond, and the Bavarian Plateau is built up for the most part of such glacial moraines and fluvio-glacial sands and gravels.

Fine particles were blown by the wind from these newly exposed surfaces and deposited to the south, along the margins of the Ice Sheet. Such deposits were often redistributed by water so that the details of their character and distribution are extremely complicated. This wind-blown deposit is known as loess and is best preserved with considerable depth in areas of flattish relief. It occurs in great tracts on the northern border of the Central Uplands between them and the edge of the Ice Sheet from Picardy to the "black earths" of the middle Elbe basin, the Ukraine and southern Russia. It is also found in considerable areas of smooth relief in lowlands in south Germany, and frequently occurs as strips in the valleys on high flat terraces, where it has been left by the erosion of the rivers subsequent to its deposition.

The Recent Period is marked by the formation of dunes, the filling of the lakes, the formation of bog (*moor*), the formation of marsh and dunes, and of spits and embayments on the northern coasts. The deposits of the glacial period are known to German geologists as *diluvial* as distinct from the *alluvial* deposits of the Recent Period.

From this summary the student will appreciate the main features of the development and character of the land forms of the German lands, and, moreover, the main features of the stratigraphy of each geological period in so far as it affects the land forms. We may now turn to consider in more detail the physiography of the lands of western Germany.

Fig. 4 shows the land forms of western Germany as mapped by Otto Maull, with minor amendments. This map is based upon the joint consideration of the relief and the geology. The latter may be checked against the Lepsius geological map of Germany on a scale of 1:500,000. This map is important as showing the final generalized presentation of the land forms of Germany by one of the leading contemporary German geographers. The student must refer to it again and again as a basis of reference in all the subsequent treatment. Suffice it to note the main features here.

Marshes (1) are shown on the North Sea coast, along the lower courses of the main valleys, and (beyond the present map) in the low-lying areas of Holland, that are now largely drained and poldered. The dunes (2) include both the coastal dunes and the areas of dead dunes along the floors of the great valleys of the Northern Lowland. Then follows in the key the group of physiographic elements that make up the glaciated Northern Lowland and the Bavarian Plateau. These elements are the great glacial troughs, the morainic plains and uplands, and terminal moraines, the sandy outwash areas in front of the terminal moraines (*Sandr*) (4–7). The extreme limits of the earliest and latest glacial phases, and the northern limit of the loess deposits in the Northern Lowland are also shown (8–10). The loess deposits, that have a distinct type of relief, are not shown

separately though they are all plains areas. For these reference must be made to the soil map. Then follow the highland areas (*Grundgebirge*) with residual outstanding ridges and highlands and small lowlands of erosion within them (11–13). The plateaus developed on the horizontal Bunter and Keuper sandstones and the eroded lowlands which they contain are demarcated (14–17). The plateaus developed on the horizontal limestones are shown, as well as the lowlands that are developed on soft Keuper and Lias marls, as in Lorraine and inner Thuringia. Other lowlands (18), more complicated in structure, described as 'neutral" and developed mainly on soft Mesozoic strata, include the Herford basin, the Harz Foreland and the Saar depression. Volcanic uplands are also distinguished (19), the chief being the Rhön and Vogelsberg, the Westerwald and the eastern Eifel. Alluvial plains (20) include the Rhine Rift, the Danube, and the Neuwied and Landestuhl depressions. The Alpine valleys are included in this category. Fault scarps, erosion scarps and transverse gorges, all particularly important in the Central Uplands, are shown by appropriate shading (21–23). In the last group of symbols are included the physiographic elements of the Alps and the Jura, that take up a small area within the political boundaries of Germany proper (24–32). Here are shown the autochthonous limestone folds of the Jura; the high Alps (over about 2,000 m. or 6,500 ft.), both glaciated and unglaciated; the limestone ranges and plateaus of the Pre-Alps and the Pre-Alps of lower altitude.

COASTS AND SEAS

The configuration of the coasts and the character of the seas as well as the general position and space relations of the coastlands are basic factors that affect the location, growth and functions of ports. In Germany in all these respects there are marked contrasts between the North Sea and the Baltic Sea.

The coast of the North Sea is a wide zone of transition between the mainland and the extreme limit of sea-water at the lowest tides. Between the two extremes are mud-flats that are exposed in varying degree at low tides and nearer the coastlands have been reclaimed at various dates since the Middle Ages. The sea floor shelves slowly and imperceptibly from the mainland, and a territory that is neither terra firma nor permanently under water lies between the two. These mud-flats are known as *Watten*. During high tides small vessels can cross the *Watten* from the islands to Hamburg and Bremen. At low tide the sea withdraws completely except for a few channels. Steep edges border the *Watten* only against the small channels (*Fahrrinnen*) in the estuaries where there are strong currents, as for example near Cuxhaven. In consequence of the rapid accumulation of mud, that reaches 3 m. per year at the mouth of the Elbe near Cuxhaven, the channels are constantly shifting their courses. Thus, the navigable channels must constantly be surveyed, and buoys that mark these channels must be

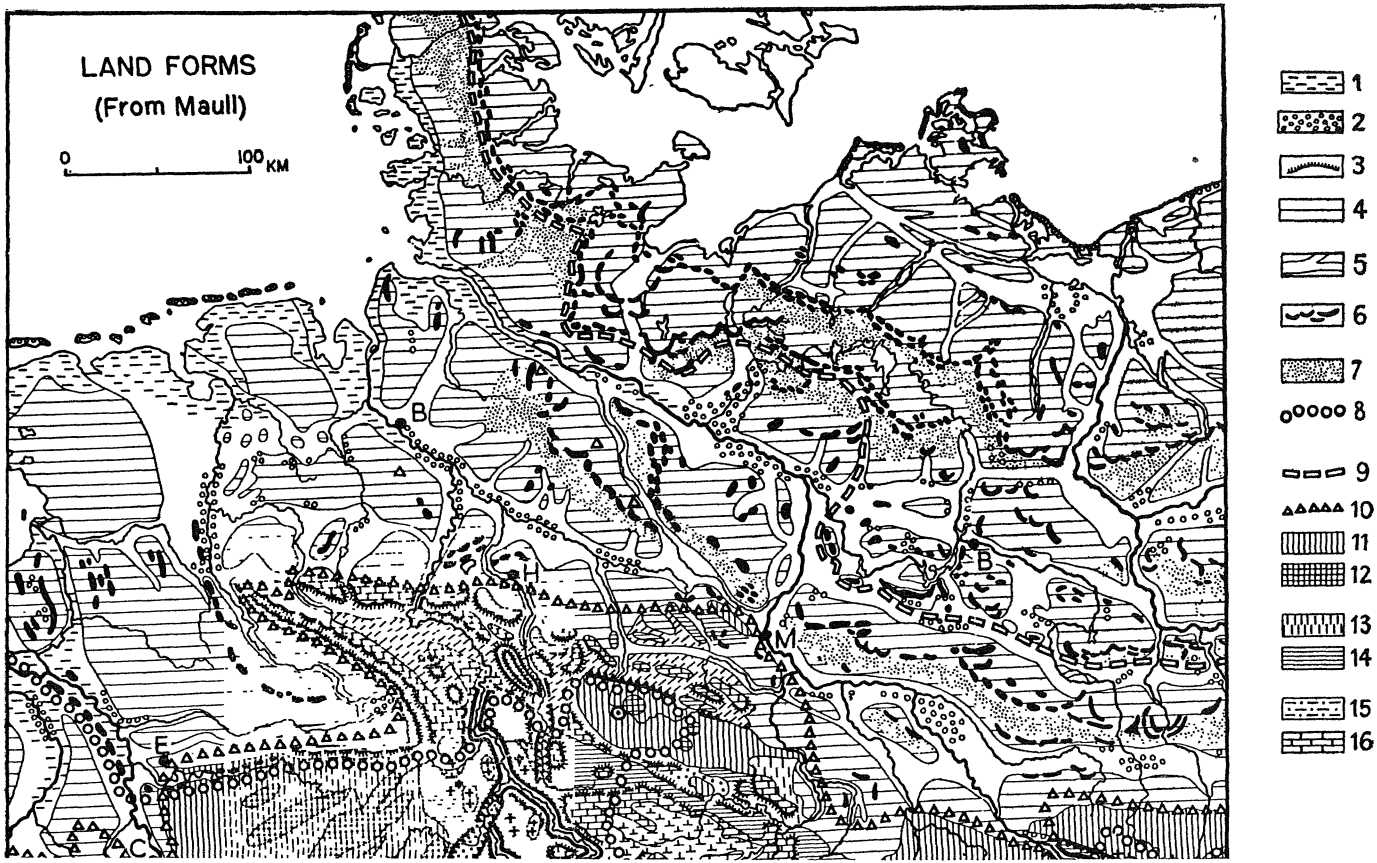

LAND FORMS
(From Maull)
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100 KM
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FIG. 4—GERMANY: LAND FORMS (*from Maull*) (scale, 1 : 4 m.)

[*For key see over*

constantly shifted. There are, however, no sand barriers formed in the estuaries owing to the strong tidal scour. The coast proper is bordered by marshes or *Marschen*, drained and dyked, that have been reclaimed from the mud-flats or *Watten*. These *Marschen* border the lower courses of the rivers and have greatly facilitated the construction of modern port installations.

In general, the North Sea coast is quite unsuitable for navigation. In a straight line of 270 km. there are only three major estuaries—the Ems, Weser and Elbe—one minor one, the Eide, and one large embayment, the Jade. These estuaries also have no adequate protection by islands from the stormy sea. It is the general geographic situation of this coastline that has permitted the development of ports along it.

The south coast of the Baltic Sea is contrasted to that of the North Sea. Cliffs appear where *Geest* (p. 33) or dunes impinge on the sea coast or where the underlying rocks outcrop, as the chalk in the island of Rügen. The coast, however, is generally flat and the slope seawards from the low coastline is gentle, although within a short distance of the coast there is water deep enough for navigation. Since there are no tides in the Baltic there are no *Watten*. Glacial deposits cover large areas behind the coast, and wave action, coupled with the general easterly drift of the water along the south Baltic shores, accounts for the accumulation of sand-spits across the river estuaries, and the formation of delta deposits is favoured in the latter by the absence of tides. The resulting smooth coastline is well represented in Pomerania. The sand-spits are called *Nehrungen* and the sheltered waters behind them are called *Haffe*. Channels have been cut through some of the *Haffe* to afford deep waterways. Sunken embayments called *Bodden* occur in Mecklenburg and Vorpommern. Finally, at the western end of the Baltic are the *Förden*. These are of glacial origin and, like the fjords of Norway, are submerged areas of low relief and soft deposits that were formerly occupied by lobes of ice. They penetrate deeply into the land and have usually considerable and constant depths of water and, in consequence, make excellent harbours. The whole coast has thus many inlets that are suitable for navigation by small vessels, except for the river mouths, that have no tidal scour and are subject to the process of delta formation and are barred by sand-spits.

The North Sea is shallow and only recently extended southwards to submerge the coastlands. The Deutsche Bucht, the name of that section of the North Sea that lies in the southeast corner of the North Sea with Helgoland in its centre, is less than 40 m. deep. With the exception of a few rock outcrops that form islands such as Helgoland, the floor consists of mud and sands. The sea coasts are flat and gently shelving and there is a wide tidal range, so that great expanses of mud are exposed

at low tides and there are large stretches of shallow water near the coasts. Thus, in the West Frisian islands, depths of 5 m. are not reached until one reaches several kilometres from the shores. But a favourable feature of the sea is that it has outlets to the open Atlantic through the English Channel and to the north between the British Islands and the south-west of Norway. Unfavourable to Germany is the fact that the shores and islands of both outlets are under the control of non-German peoples.

The relative openness of the North Sea to the Atlantic is reflected in the temperature, salinity and tidal conditions of the waters, all three of which affect the navigability of the sea. In winter the temperature in the Deutsche Bucht does not fall below an average of 2–3° C. and the salinity is about 30 per 1,000. Thus, the North Sea waters do not freeze. Ice appears only in the severest winters near the coasts in the *Wattenmeer*. The estuaries of the Weser, Elbe and Ems rivers are thus navigable at all times of the year.

Tides spread to the North Sea from the Atlantic. This has a twofold consequence. The tides maintain the funnel shape of the estuaries and the strong ebb tides help to keep them relatively free of silt. Further, if sailing is properly timed, the estuaries can be used during high tides for both upstream and downstream navigation and during high tides the maximum depths of water allow large vessels to navigate the channels. The question of the construction of wharves or enclosed docks enclosed by locks is tied up with the tidal range. The average tidal range (German, *Herb*) is 2–3 m. At Helgoland it is 2·25 m., Bremen 2·42 m., Cuxhaven 2·84 m., Hamburg 2·17 m. The average spring tide, at the time of full and new moon, reaches 4 m. at Wilhelmshaven, and the neap tides, at times of half moon, only 1·84 m. at Helgoland. The tidal current averages over 3 nautical miles or 5 km. per hour.

The sea is exposed to storms, especially in the winter half-year. At

Fig. 4. GERMANY: LAND FORMS.

1. Marsh
2. Sand dunes
3. Cliff coast
4. Low plateaus and hills (*Platten*)
5. Glacial troughs
6. Terminal moraines
7. Outwash sands in front of 6 (*Sandr*)
8. Limits of early glaciation
9. Limits of latest glaciation
10. North limit of loess
11. Highland
12. Higher land in 11
13. Lowlands of erosion in the highlands
14. Plateaus and scarps on horizontal sandstones
15. Lowlands in 14
16. Plateaus and scarps on horizontal limestones
17. Lowlands in 16
18. Other lowlands not in the above categories
19. Volcanic hills
20. Depressions filled with recent deposits, valleys, and Alpine passes
21. Fault scarps
22. Erosional scarps
23. Transverse gorges
24. Areas of local glaciation
25. Limestone ridges
26. Alpine Mountains, unglaciated
27. Alpine Mountains, glaciated
28. Alpine Mts.—limestone ranges
29. Alpine Mts.—limestone plateaus
30. } Pre-Alps of medium altitude,
31. } with occasional high rugged relief
32. Alps—lower altitude foothills

this time of the year, southwest to northwest storms are frequent and are often associated with strong seas. The average wind strength at Borkum is 8 metres per second and 5 at Hamburg as compared with only 2 at Kassel. But wind strengths of over 30 metres per second are not seldom in the Deutsche Bucht. Sea floods are also common at this time. In the last hundred years only the years 1851 and 1910 were free of coastal floods. In 1868 there were 27 storm floods (*Sturmfluten*). At such times there are numerous shipwrecks and ships are often in distress both in the Deutsche Bucht and in the estuaries and harbours. For days on end small vessels are moored. Ships sometimes break from their moorings, and on one occasion at Cuxhaven a Hapag liner broke loose and carried half the quay wall with it. At such times, the roads and wharves of the harbour may be under water, warehouses flooded, and docks closed to ships. Storm warnings help to stave off some of these disastrous consequences. Fog and mist are also navigational difficulties. Thus, after two days of fog in March 1931, sixty sea-going vessels that were anchored in open water suddenly entered the mouth of the Elbe in three to four hours, where they had been held up until the fog lifted. In Borkum, there are sixty days of fog per year, three-quarters of which occur between October and March. In Hamburg there was an average of eighty-six days of fog from 1875 to 1925, and from 1875 to 1900 fog or mist occurred on every second day from October to February. In Hamburg this phenomenon is aggravated by factory smoke and by the shortness of the days in winter.

The Baltic is virtually a closed sea with three narrow outlets through the Kattegat to the North Sea. The best of these channels is the Grosse Belt. The Sund has a depth of a little more than 7 m. These entrances to the Baltic can be barred and this has been the principal reason for the struggles of the northern sea-powers, especially Denmark, to control the narrow channels. There is often a rapid alternation of shallow and deep water in the Baltic Sea. Thus, half-way between the Bornholm and Rügen islands there is a depth of only 6 m. and in the Lübeck Bay 6·5 m., and at the mouth of the Oder 7 m. The Baltic lands have also more continental conditions than the North Sea lands. The water temperature in winter has an average of only 1° C. The salinity is only a quarter or a third of that of the waters of the North Sea. Indeed, the water of the Bothnian Sea in the north is almost fresh. Thus, the Baltic waters freeze in winter, and have an extensive ice cover in extreme winters. Thus, in the winter of 1928–9 (in February and March) the northeast and east sections of the sea were frozen, and navigation was brought to a standstill in the southern waters. The harbours freeze every winter, and every year the small sea vessels of the German ports are at a standstill and navigation is difficult for larger vessels. The ports

in the north of the Baltic, such as Lulea in Sweden, are closed for three to four months and at this time the iron ores of northern Scandinavia go through the ice-free port of Narvik. The German *Seewarte* issues daily reports on ice conditions and daily ice charts, just as in the North Sea daily reports on storminess and fog are issued. Tides, on the other hand, are negligible. Storms and floods are far less frequent in the German Baltic than in the North Sea. Storminess, however, is more marked in the southwestern sector, for here northeasterly storms are frequent, associated with a high pressure system over Scandinavia and a low pressure moving from the Adriatic to southeastern Germany. Under these conditions storms bring to Lübeck and Kiel a rise of water-level of 2, 3 and even 4 m., that may cause extensive damage. Fog plays a small role. Neufahrwasser had an average of twenty-seven fog days from 1875 to 1900.

THE NORTHERN LOWLAND (Figs. 2 and 4)

The Northern Lowland of Germany is a portion of the great lowland that extends from the Artois Hills in Flanders to the Pripet marshes and thence into the lowlands of central Russia. Most of the area is under 100 m. in altitude, and only its zones of low hills reach more than 200 m., with a maximum height in the Turmberg, west of Danzig, with an altitude of 330 m. West of the Lüneburg Heath the plain has altitudes over wide areas of under 50 m. and there are no sharp slopes. But in the Lüneburg Heath there are differences of as much as 50 m. in local elevations, so that here one frequently finds a closely undulating surface relief, that is especially marked, with quite abrupt slopes, on the northern side towards the Elbe plain. These hilly characteristics are especially marked in the uplands east of the Elbe, as for instance in central Schleswig-Holstein, where local variations of relief of as much as 70 to 100 m. are found. The Northern Lowland is, indeed, low-lying, but it has considerable diversity of both relief and surface conditions. To the south, the lowland spreads towards the Central Uplands in a broad intermediate zone. Here there are three great embayments of lowland jutting into the Uplands. These are the so-called Cologne Bay and the Westphalian or Münster Bay adjacent to it; the middle Elbe basin, in whose centre lies the city of Leipzig, variously known as the Saxon or Leipzig Bay; and the Silesian Bay, that is drained northwards by the Oder and lies between the Sudetes, the eastern wing of the Bohemian Massif, and the western edge of the uplands of central Poland.

Surface Deposits. The surface deposits of the Northern Lowland are the results of glaciation. Superficial glacial deposits reach depths of 100 to 200 m., but Mesozoic rocks form the basis of the whole of the North German Lowland from the northern edges of the Central Uplands to

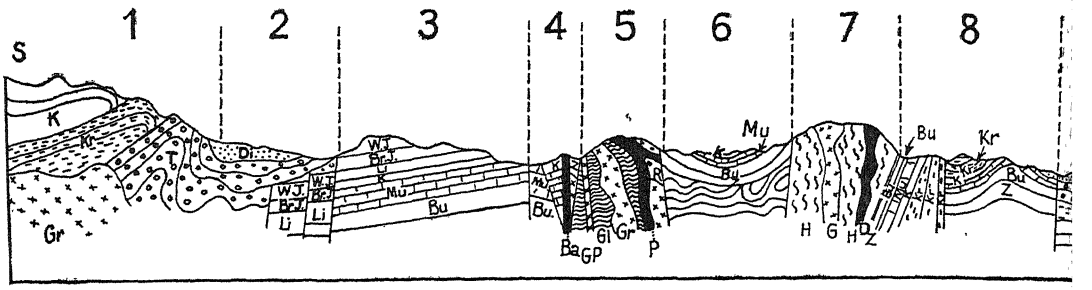


FIG. 5—GENERALIZED GEOLOGICAL SECTION ACROSS GERMANY FROM

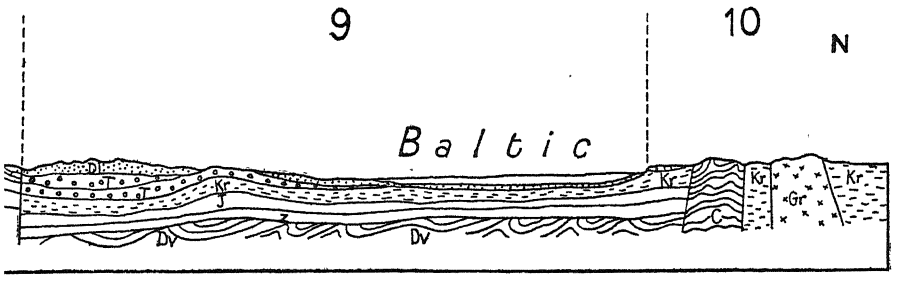
Geological Divisions

Gr = Granite
G = Acid Granite
GP = Granite porphyry
Gn = Gneiss
Gl = Mica schists
P = Porphyry
Ba = Basalt
H = Paleozoic beds
D = Diabase
Z = Magnesian Limestone (Zechstein)
Bu = Bunter sandstone
Mu = Shelly Limestone (Muschelkalk)
K = Keuper
Li = Lias
BrJ = Brown Jura
WJ = White Jura

the southern edges of the Fennoscandian Shield.[1] Moreover, the structural trends of this underlying land were from west to east and east-north-east to west-south-west, that is, in the general Hercynian trend and in the same direction as the Saxonian folding. Their relief undoubtedly affected and directed the movements of the great Ice Sheet, and, in consequence, the general disposition of morainic uplands and the great glacial spillways and river courses.

The Ice Sheet advanced in three stages with intermediate or interglacial phases. The oldest is called the Elster glaciation, the middle stage is the Saale glaciation, and the youngest is the Vistula glaciation. The first phase was the most extensive and reached south to Nijmegen, Cleve and Krefeld, where remnants of these oldest moraines form hills with eighty metres between their highest and lowest points. East of the Rhine, the ice front reached to the foot of the uplands, although it pushed south beyond them, for instance, across the Teutoburger Wald, and across the Lower Harz south to Erfurt, filled the Leipzig Bay, and stretched south up the slopes of the Erzgebirge to heights of 400 m. The limit of the most recent phase ran through the centre of the Jutland peninsula, thence eastwards parallel to the present coast to Schwerin and thence south through Neuruppin to Brandenburg, thence due east

[1] The underlying rocks frequently lie near the surface, and often actually outcrop. The Bunter sandstone outcrops in Heligoland. Limestone rocks (the Zechstein, Trias and Cretaceous) outcrop in the hills around which Lüneburg has grown. Moreover, the underlying rocks often lie near enough to the surface to permit the quarrying of chalk, as on the outskirts of Berlin, while salt and potash beds in the Magnesian Limestone (*Zechstein*) are bored in the district of the Aller river.



SOUTH TO NORTH (from *Seydlitsche Geographie*, 1925, pp. 4–5)

Dv = Devonian
C = Carboniferous
R = Red Sandstone (Rotliegendes)
Kr = Cretaceous (Kreide)
T = Tertiary (Molasse)
D = Diluvium (Glacial period)

Physical Regions from S. (left) to N. (right)

1. Allgau Alps
2. Bavarian Plateau
3. Swabian-Franconian Scarplands
4. Rhön
5. Thüringer Wald
6. Thüringian Lowland
7. Harz
8. Harz Foreland
9. Northern Lowland
10. Schonen (S. Sweden)

in a great curve slightly convex to the south and about forty kilometres south of Berlin, Frankfurt and Posen, so as to reach the Vistula near Plock. The western part of the lowland then lay beyond the reach of the ice and its glacial features have been broken down and modified by erosion since the earliest glacial phase when the ice retreated from it. Indeed, the great valleys formed by the rivers on the southern edge of the Ice Sheet drained westwards and converged near Havelberg and found their exit in what is now the lower Elbe valley, the greatest and most deeply cut of all the glacial troughs.

There are marked differences of land forms between the areas of Young Drift (*Jungmöranen*) left by the Vistula glaciation to the north, and the areas of Old Drift (*Altmoränen*) to the west and south of the Lüneburg-Fläming-Lusatian moraines. Let us first notice the land forms of the Young Drift.[1] Ground moraines when weathered yield a loam containing many fragments called boulder clay (*Geschiebemergel*). The ground moraines were shifted about at the base of the Ice Sheet in various ways, so as to yield different kinds of surfaces when the ice retreated. Thus, there are the ground-moraine plains (*Grundmoränenebene*), that form extensive level or gently undulating surfaces. Probably the Ice Sheet was "dead" in these areas and gradually disappeared by melting rather than by the movement of retreat. Hilly morainic topography (*Kuppige Grundmoränenlandschaft*)

[1] P. Woldstedt, *Geologisch-morphologischen Übersichtskarte des norddeutschen Vereisungsgebietes*, 1 : 1,5000,000, with explanatory text. Berlin, 1935. Also his *Norddeutschland und angrenzende Gebiete im Eiszeitalter*, Stuttgart, 1950.

has a maze of small, steep-sided hills and hollows, that often lack a normal drainage outlet and contain a lake or marsh. Such morainic deposits were formed on the edge of the Ice Sheet and merge into the terminal moraines. Drumlins are elliptical-shaped hills like a portion of an egg, elongated in the direction of ice movement. Terminal moraines accumulated during the main halting phases. Low, hummocky, irregular hills with a general curved direction lie parallel and adjacent to the edge of the ice. Melt waters provided lakes and troughs (*Rinnen*) as long sinuous strips. The troughs are especially characteristic of the edge of the Ice Sheet and run at right angles to the terminal moraines and are often parallel to each other, or form a fan-like network. They were mainly formed by sub-glacial melt waters (*Schmelzwasserströme*) that flowed at the bottom of the Ice Sheet near its margins. Freezing often preserved old beds and lakes at the bottom of the ice so that a complicated net of such lakes emerged, as in the neighbourhood of Berlin and in East Prussia. Glacial and river erosion combined produced lakes behind horse-shoe-shaped moraines; these are called tongue-basins (*Zungenbecken*). Similar to these are some of the *Förde* or sea-embayments, where the sea has invaded such a terminal moraine to the lake behind it (e.g. Apenrader Förde). Lakes of other kinds occur in the recently glaciated surfaces where the fresh glacial features have not yet been removed by normal erosion. Many of them occupy hollows that were left by the slow melting of residual blocks of ice, whose sites, in consequence, were protected from the deposition of material and thus formed hollows. Many are small dammed lakes (*Stauseen*) in which water-courses were blocked by moraines. Eskers are sandy ridges, like railway embankments: these were the beds of sub-glacial rivers and lie in the direction of ice movement at right angles to the terminal moraines. Kames are hills of sand and gravel that were laid down in hollows between ice blocks; they are very like terminal moraines. Fluvial-glacial deposits were laid down beyond the edge of the Ice Sheet and today form large flat stretches of sand and gravel that are called *Sandr*. Many of these deposits were formed by the same streams that occupied the *Rinnen* or troughs, the courses of which beneath the ice are revealed by strings of lakes. They were laid down as great delta fans beyond the terminal moraines, and become more sandy further from the latter.

These features are only found as fresh, unmodified land forms in the area most recently abandoned by the Ice Sheet. On the Old Drift, further to the south and northwest, they have been destroyed or modified by erosion. The melt waters, that created the *Sandr*, flowed in great troughs westward to the sea. These are called "old (glacial) river valleys" (*Urstromtäler*) and there is one such valley to each particular halting phase, although there are many interlocking channels between

the Elbe and Oder around Berlin. The floors of the valleys are covered with sands of different ages. Deep beds of sands and gravels, known as *Geest*, are cut into low platforms by the abandoned floors of these glacial channels.

Deposits differed in the country that lay beyond the Ice Sheet—the "peri-glacial deposits". During the colder glacial phases the rivers laid down great masses of gravel (*Schotter*) and their association with climatic conditions is most marked in the terrace gravels of the Central Uplands (*Mittelgebirge*). The cold continental climate favoured atmospheric erosion and the rivers were loaded with debris. The rivers flowing north from the Central Uplands formed outwash fans (*Schwemmkegel*).

Loess, however, is the most important peri-glacial deposit. This is a bright yellow deposit that yields a sandy-loam soil, rich in lime, with a tendency to vertical cleavage. The general distribution is shown in Fig. 3. Loess is a wind-blown deposit that was laid down in pockets of lowland in the areas south of the Ice Sheet. It forms a belt along the northern edge of the Central Uplands, and covers basins and valleys in the Uplands, while in considerable tracts of country the surface soils show a loess component. With the loess should be included mixtures of loess and blown sand such as occur in northwest Germany, the Lüneburg Heath and the Fläming Heath.

Blown sands and dunes also accumulated on the edge of the Ice Sheet. They occur mainly in the great valley floors. The dunes are usually short and parallel to each other, curving to the east and southeast. The largest area is between the Warthe and the Netze rivers. Blown sands cover large areas in northwest Germany and Holland.

In the interglacial periods distinctive deposits were intercalated with those mentioned above. They had a fauna and flora that indicate milder conditions, comparable to those of today. There are interglacial bog, fresh water, lake and river deposits. The flora in the early stages of the interglacial change, when conditions were still very cold, includes the birch, later followed by pines, and then, in the middle of the warm phase, by hazel, elm, lime, oak, willow and hornbeam. These are then followed by the conifers and the birch as the next cold glacial phase developed.

From the twelfth century onwards, the land has been gradually reclaimed from the marshes of the shelving foreshores from northern France to western Denmark. This is most conspicuously the case in Holland, where engineering projects in the nineteenth century have permitted great inland marshes and shallow lakes well below sea-level to be reclaimed, beginning with the reclamation of the Haarlem lake and culminating today with the steady reclamation of the Zuyder Zee that was an inland lake until the fifteenth century. The same steady progress has

gone on in north Germany, where the reclamation of the marshes, as historical records reveal, began at the mouth of the Weser below Bremen in the twelfth century. Similar beginnings are recorded at the same time on the coast of Flanders, where the land immediately behind the coastal dunes, that lay below high-tide level, was drained by building sluice gates through the dunes to drain off the water at low tide.

Main Relief Units. The Northern Lowland embraces three main relief uints—the Lower Rhineland, the lowlands of Lower Saxony, and the lowlands of eastern Germany, that lie beyond the Elbe plain and stretch south to include the Saxon Lowland in the middle Elbe basin. It contains the northern glaciated lowlands, and the loess zone between these and the Central Uplands. This latter zone is fertile, well-drained, arable land, and is known generally as *Börde*, though it has distinct regional names.

The *Lower Rhineland* lies in northwestern Germany, bounded by the Dutch and Belgian frontiers to the west (beyond which extend westwards the same types of country), and by the Weser Uplands to the east and the Rhine Massif to the south. The constituent units of this lowland are the Lower Rhine Plain, the Cologne Lowland (or Bay), and the Westphalian or Münster Lowland (or Bay). (Figs. 13, 14.)

The Lower Rhine Plain is a part of a great fan of alluvial deposition built by the ancestors of the Rhine and Meuse that has its apex in the head of the Cologne Bay, and broadens out northwards to include all the Lower Rhineland and much of Holland and northern Belgium. The present rivers have incised their courses into these deltaic sands and gravels in several stages, so as to form three main terraces, that generally decrease in altitude northwards from the Cologne Bay. The upper terrace (*Hauptterrasse*) contains the oldest gravels and lies at the highest levels, forming raised platforms of sandy and gravelly, forested land. Such areas occur on the eastern side of the Rhine between it and the slopes of the Rhine Massif, while on the west side there is a raised "horst" or ridge called the Vorgebirge or Ville that trends from southeast to northwest. The middle terrace (*Mittelterrasse*) is below the upper terrace and has a smooth relief and is often covered with loams and loess and is, in consequence, generally under cultivation. The lower terrace (*Niederterrasse*) lies only a few metres above the flood level of the Rhine. The river flood plain widens below Cologne and the river frequently shifted its course until it was diked and the flood plain drained in the fourteenth century and after, while the main channel has been dredged, deepened and embanked since the nineteenth century. The river plain below the confluence of the Lippe is in fact an extension of the Dutch polder land (German, *Marschen*) and widens out in central Holland to form the land called the Betuwe that lies between the raised sandy heathlands of the Veluwe to the north and the Campine to the south. Isolated

hills rise above the surface of the upper terrace and stretch in a chain from near Nijmegen south to Cleve and thence to Xanten. At various points the Rhine undercuts both the high terrace and the unconsolidated masses of sands and gravels of which these hills are composed. These river bluffs are frequently the sites of towns, such as Arnheim, Nijmegen and Cleve.

The Cologne Lowland is a V-shaped, loess-covered embayment in the northern border of the Rhine Massif. The only break of relief is afforded by the narrow ridge of the Ville. This is a faulted horst remnant of the upper terrace (*Hauptterrasse*).

The whole lowland narrows westwards towards Aachen where it is overlooked by the high and steep front of the Hohe Venn plateau. The Aachen Lowland is a peneplain developed on chalk beds, that corresponds in altitude with the high terrace. It is interrupted by valleys that follow fault troughs directed again from north to south, each filled with Tertiary deposits and forming a meadow-filled valley with steep wooded sides. The Wurm and the Rur are such valleys. Above the open plain rise the wooded chalk hills of the Aachen Wald (350 m.) that overlook and enclose the town in its great saucer-shaped depression.

The Westphalian Lowland is developed on a fundament of marls, limestones and sands, that form a shallow syncline, plastered in its centre with glacial deposits. The beds are almost horizontal on the southern side, where the outcropping limestones form a long, narrow east–west strip of undulating, dry country. This country is known as the Haarstrang. It ends to the south in a well-defined scarp that overlooks the green wooded valley of the Ruhr, beyond which lies the rounded skyline of the Sauerland. To the north, impervious clays form the lowlands of the Emscher and Lippe, and on the northern edge of the Haarstrang at the zone of contact of clays and limestone there is a very well-defined line of springs. On the north side of the syncline the rocks are steeply tilted on the southern slopes of the Teutoburger Wald, but extensive areas of fluvio-glacial gravels, 22–28 m. thick, form a lowland zone of heath called the Senne on the southern side of the hills. The centre of the lowland around Münster is plastered with glacial deposits although low hills betoken the presence of the underlying chalk rocks.

The *Lowlands of Lower Saxony* embrace from north to south the flat, reclaimed coastal marshes, the zone of intermixed bog and heath that is developed on a general base of glacial sands and gravels, and the loess-covered lowland strip that lies on the border of the *Mittelgebirge* from Osnabrück to Magdeburg (*Börde*). The Marsch zone extends from the west of Schleswig-Holstein, through the lower Elbe, along the coast to the lower Weser, and thence westwards to the lower Ems and into northern Holland. The flat lands are frequently overlooked inland by the sharp

edge of the Geest as in the case of the lower Weser below Bremen (Fig. 85). The Geest sands rise to gentle upland surfaces to 50–70 m., as in the Hummling north of the Hase river (73 m.), though there are extensive flats around this nucleus that were the former floors of glacial troughs and are now ill-drained bogs. To the south between the Ems and Hunte rivers the relief is interrupted by low hills with altitudes of 100–150 m. that are outliers from the Weserbergland to the south. The southern limit of the Geest against the loess country is definitely marked in the landscape along a line from Hanover through Minden to the foot of the Wiehen Gebirge north of Osnabrück. The Lüneburg Heath is a morainic upland between the Elbe and the Weser-Aller, with an average altitude of 80–100 m. and a maximum height of 169 m. in the natural park of Wilsede. It has steep slopes overlooking the Elbe plain, that is fretted by many little wooded valleys, whereas it slopes gradually to the low-lying bog and heathlands on the low Stade Geest to the north, and the Altmark to the southeast, where hills (160 m.) and bogs (*Drömling*) are intermingled.

The *Eastern Lowlands* beyond the Elbe owe their features almost entirely to the varying blankets of glacial and fluvio-glacial deposits and the subsequent work of weather, river and wind. They include the glaciated relief of the northern section of the lowland that lies east and north of the Lüneburg Heath-Fläming Heath-Lower Lusatian Heath and their eastward continuation in the Katzengebirge.

This is the most southerly belt of a series of uplands and troughs that swing from west to east as great arcs convex to the south. It is sometimes referred to by geologists as the Outer Baltic Ridge. The main belt to the north is generally known as the Baltic Uplands or the Inner Baltic Ridge, and extends from Schleswig-Holstein to East Prussia. Between these two belts are the marshy valley troughs and low diluvial platforms that are associated with the glacial rivers that flowed westwards on the edge of the Ice Sheet. This country is best developed in Brandenburg between the Elbe and Oder rivers. The direction of the old troughs (*Urstromtäler*) is indicated by the east–west courses of the main rivers and their tributaries, while their south–north courses indicate the shifts of their channels through the terminal moraines as the Ice Sheet retreated northwards.

The main troughs from north to south are: (1) Thorn-Eberswalde valley and its continuation in the Wartha and Oder valleys; (2) the Warsaw-Berlin valley, that includes the Spree-Havel west to the Elbe; (3) the Glogau-Baruth trough to Burg on the Elbe; and (4) the Breslau-Magdeburg valley, south of the outer ridge.

South of the Fläming and Lusatian uplands there is entirely different country. The great stretches of sands and clays through which the Elbe

winds its course across an extensive flood-plain, is the most southerly of the great troughs. Beyond it lies the Saxon Lowland. This is a great embayment that pushes south into the circle of uplands formed by the Harz and Erzgebirge. It has a base of horizontal Tertiary beds that contain great deposits of lignite. It is the focus of the drainage from the surrounding highlands and merges gradually into the low plateaus of Triassic sandstone and limestone along the Saale, and the Saxon uplands to the south. An extensive loess cover blankets this border and produces everywhere a similar landscape—rolling land under arable cultivation, hedgeless fields and compact villages. This is the biggest expanse of the *Börde* country.

CENTRAL UPLANDS (*Mittelgebirge*) (Figs. 13, 14)

The term *Mittelgebirge* means uplands of "medium" altitude. They are intermediate in both altitude and position between the lowlands, which are below an average altitude of 200 m., and the Alps or *Hochgebirge*, where most of the land is over 1,000 m. in altitude. The summits of the highlands of the *Mittelgebirge* seldom exceed 1,000 m., although the relief is actually extremely varied.

The Central Uplands, as generally interpreted, cover the whole of the country between the Northern Lowland and the Alps. They thus cover the greater part of Germany. The western half is drained northwards by the Rhine and its tributaries, and the centre by the Weser and its tributaries, while the southern sector, lying for the most part in Bavaria to the north of the Alps, is drained eastwards by the Danube from its source in the Black Forest. This area contains rugged highlands, cultivated plateaus, wooded sandstone plateaus, wooded scarps, and fertile vales and lowlands and uplands. But a glance at Fig. 2 (p. 16) reveals that the whole falls quite clearly into two sections, one in the north that is formed by the main highland massifs—the Rhine Massif and the Bohemian Massif with the trough of Hesse between them; and the southern section that lies south of these massifs and stretches to the foot of the Alps. We shall, in fact, regard the Bavarian Plateau as a separate main division in our treatment.

CENTRAL GERMANY

The *Mittelgebirge* proper include the great Rhine Plateau or Massif; the knot of uplands that radiate from the Fichtelgebirge; the isolated outlier of the Harz; and the lower hills, ridges and lowlands of the so-called Weser Uplands (*Weserbergland*) between them, including the vol-

canic highlands of the Rhön and the Vogelsberg; and the west and east Hessian lowlands that flank these highlands. This east–west belt of highlands is traversed by the Rhine and Meuse in the west, the Weser-Leine system in the centre and the Elbe-Saale system in the east. It has a width of about 150 to 200 km. It should be noted, however, that these highlands never were effective barriers, but from early times have been traversed by routeways. The central area drained by the Weser-Leine system is the old province of Hesse that has always been a great zone of human movement from north to south between the Rhine Massif and the Thuringian Highlands, Fichtelgebirge and Bohemian Plateau. Of the greatest importance is the route along the Rhine gorge between Bingen and Bonn, but many lesser routes crossed both the Rhine Massif and the Thuringian Highlands and the highland knot of the Fichtelgebirge.

The outcrops of the rocks and the lie of the relief indicate certain definite structural trends. A trend from northeast to southwest is evident in the rock outcrops and the relief of the Rhine Massif. On the other hand, the Harz and the Thuringian Highland have a northwest to southeast trend, that is due to faulting, and cuts across the grain of the northeast to southwest rock outcrops. The same northwest to southeast trend is evident in the so-called Harz Foreland on the northern side of the Harz, north as far as the Flechtinger *Höhenzug*. The fault lines of the Hessian and Weser uplands are for the most part directed from north to south.

Moderate altitudes are dominant, the average being about 400 m. Few points are over 1,000 m. Rolling surfaces and gentle undulations rather than mountainous relief are characteristic. The plateaus are sometimes deeply dissected, however, as in parts of the Rhine Massif, so that they may assume quite a mountainous appearance, although the concordant and rounded summit levels reveal the form of the initial uplifted plateau surface. Steep-sided ridges are characteristic of the Weser Uplands and the Harz Foreland where Mesozoic limestones and sandstones are steeply tilted to form monoclinal ridges that often have a bold relief, though they are low in altitude. Deeply entrenched meanders, such as those of the Rhine and the Moselle, are characteristic in the Rhine Massif.

The *Rhine Massif* is an uplifted plateau with a smooth or rolling relief, traversed by deeply incised valleys, the chief of which are the Rhine, the Moselle and the Lahn. The plateau has large surfaces with an average altitude of 200–400 m., while above this level rise the main highlands with maximum altitudes of 650–700 m. in most of the plateau, and 800–900 m. in the Taunus and Hunsrück in the south and in the Rothaargebirge in the northeast. Certain areas are deeply dissected, such as the Ahrgebirge, so as to present a quite formidable mountainous character, although there is a striking uniformity of the skylines and remarkable similarities between the many valleys. Elsewhere, rougher highlands stand

up from this general base owing to the resistance of their hard rocks that trend from northeast to southwest. Then again there are areas of smooth and lower-lying relief on the plateau that are due to differential erosion or to faulting. Vulcanicity, too, has added its contribution to the land forms, for not only are there the typical explosion crater lakes on the Vor Eifel, but there are extensive basalt plateaus in the Weserwald east of the Rhine.

The development of the land forms is complicated and views are at variance as to their origin but their main characteristics in the geographic sense are clear. Below the highlands of residual, resistant rocks (especially quartzites) lies the uppermost and oldest peneplain, that was called the *Trogfläche* in 1899 by Philippson. It is the pre-Pliocene surface on which the Rhine and Moselle pursued their meandering courses in Pliocene times, evidences of which appear in high terrace gravels (*Flurterrassen*) at 200–240 m. and 300–315 m. Subsequent erosion by the rivers resulted in the formation of the middle terrace (about 140 m.) and the low terrace (about 80 m.) along the valleys.

The *Weser Uplands* lie between the Rhine Massif and the Harz. An outstanding feature of the relief of this zone is the northwest–southeast trend of its short, low, but steep-sided and wooded hills and uplands. These rise above the lowlands, flat or undulating and closely cultivated, that surround them, as a sea lapping around many elongated islands. The Weser Uplands proper lie between the Teutoburger Wald and the Wiehen Gebirge which converge to the northwest and face each other with inward-turned scarps. These overlook undulating lowlands of Keuper and Lias marls and clays across which meander the tributaries of the river Weser that cuts through its famous water-gap at Minden. This whole area is, in simplest terms, an eroded anticline, comparable with the Weald. These may be called the Westphalian Uplands. To the east, between the Weser and the Leine, and extending beyond the south–north Leine along the north of the Harz, is the zone *par excellence* of the northwest–southeast ridges, rising from loess-covered plains. The latter are closely settled and afford open natural highways southwards into the heart of the Hessian highlands. This unit we shall call the East-phalian Uplands. It reaches north to Hanover and Brunswick and extends eastwards as a zone on the northern side of the Harz. (Fig. 13.)

The third main relief unit lies to the south and stretches as far as the junction of the Fulda and the Werra. The flat and wide lowlands are now a minor element in an area of upland relief that is traversed by the master valleys of the Weser and the Leine, both of which drain from south to north. This whole country is composed of several outstanding and remarkably repetitive forms of relief. There are relatively high and inaccessible plateaus of horizontal sandstones that are still predominantly

forested. There are more occasional limestone uplands in which, though well wooded, there is a good deal of cleared and cultivated land. There are the two sunken wide, open troughs of the Weser and the Leine. These are lower in altitude and smoother in relief, and are in part filled with loess deposits and form areas of arable cultivation and close settlement. These are the Leine Uplands.

The Weser Uplands merge southwards beyond Kassel into the *Highlands and Lowlands of Hesse*. The troughs of the Weser and Leine are continued southwards by small lowland compartments. One is followed by the Fulda and its southerly continuation through to the Wetterau at the northern end of the Rhine Plain. The other lies along the north–south valley of the Leine and is continued south (beyond the end of the Thuringian Highland) in the upper Fulda valley. These are two structural depressions, known as the West and East Hesse Depressions respectively. Between them, south of the Werra valley, are the sandstone plateaus of the Meissner and Knüll, and the volcanic massif of the Vogelsberg, while east of the upper Fulda lies the volcanic massif of the Hohe Rhön. These highlands, together with the two depressions, form the outstanding features of the relief of Hesse. East of the Rhön are limestone uplands, studded with volcanic hills that surround it: this is the Vorder Rhön. Beyond the latter lies another narrow lowland between it and the Thuringian Highland. This is followed by the upper course of the Werra and affords access southwards to the limestone plateaus of Franconia. This may be called the Upper Werra Lowland. It will be clear why this whole area of Hesse was always of such great importance as a corridor of movement across the Central Uplands.

SOUTHERN GERMANY

The great area south of the central German highlands as far as the Alps shares the same *general features* as the former, except that the high plateaus are less extensive and lowlands cover a much larger area. Both the Variscan and Hercynian strikes are evident in the relief, while faulting from north-north-east to south-south-west determines the direction of the Rhine Rift and the plateau blocks on either side of it. The foreland of the Alps in Bavaria and in Switzerland forms a distinct geological and physiographic unit.

The relief of south Germany as a whole has several outstanding characteristics. The first is that the low level of the Rhine *graben* or rift offers a low basis of erosion for the tributaries of the Rhine. These tributaries thus have much greater cutting power than the tributaries of the Danube, since this river has higher levels than the Rhine, its height at Passau being 290 m. above sea-level as compared with 85 m. at Mainz.

The second is that the *degree* of relief, measured by the average interval between the highest and lowest points in short distances of 5 km., is 200–500 m. in nearly all the uplands. Only parts of the Black Forest have a higher and more deeply dissected relief. Thirdly, the flat areas, the real plains, with a degree of relief under 50 m., include, above all others, the Rhine Rift from Basel to Mainz and its extension northeastwards from the Main-Rhine confluence in the Wetterau. Smaller areas lie along the Danube and in the centre of the Bavarian Plateau. The latter, however, is normally undulating or even hilly with a degree of relief of 50–200 m. and is in this respect comparable with the greater part of the whole area of southern Germany.

Geologically, the old uplands (*Grundgebirge*) consist of gneiss, granites, schists and porphyries. Above these comes the sequence from Triassic to Cretaceous, and Upper Tertiary beds appear in the Bavarian Plateau. To these must be added the erupted volcanic deposits. Of great importance in the development of the land forms of southern Germany is the relative resistance of these rocks to erosion and their permeability or impermeability. In this respect, the rocks of southern Germany may be classed as in the table on p. 51 in which are shown the age of the rocks, their lithological character, and the salient features of land use and settlement.

The main geological elements are as follows: (1) the *Grundgebirge*, consisting of granites and gneisses, folded at the end of the Carboniferous period; (2) the gently folded Mesozoic strata that, to the eye in the field, are horizontal; (3) the Tertiary and Quaternary deposits that were laid down in the geosynclinal of the Alpine foreland and the Rhine Rift Valley—marine, lacustrine and glacial deposits; and (4) the recent Tertiary folded system of the Alps.

The *Grundgebirge* comprise Black Forest, Vosges, and the highland borders of the Bohemian Massif. These are uplifted plateau blocks in which differential erosion has worked upon adjacent outcrops of varying resistance, so that the hard quartzites stand out as residual ridges as in the Taunus, whereas the soft Carboniferous schists form areas of lower and smoother relief with broad mature valley floors in the plateaus. Where there are sharper, outstanding ridges, as in the Böhmer Wald, these are likely to be due to recent faulting. Upper Carboniferous and Permian strata are to be found in a geosynclinal stretching from the Saar across the Pfälzerwald to Frankfurt and thence to the northern end of the Thüringerwald. These strata are varied and give a variety of relief features, but at the end of the Paleozoic there was very little difference in altitude and surface between the peneplained surface of the *Grundgebirge* and the Permian geosyncline. This surface is called the pre-Triassic peneplain (*Prätriadische Rumpf*). Mesozoic strata were laid down

on this submerged peneplain, which is now exposed on the edge of the Bunter sandstone (the lowest of the Triassic series) where it forms a denudation platform with a spring line at the base of the sandstone. Such outcrops occur near Heidelberg and in the west of the Spessart and in the whole of the northern Black Forest. These Mesozoic strata stretch westwards from the Vosges across Lorraine towards the Moselle valley and eastwards in south Germany to the extensive plateaus of the Jura. They also stretch as horizontal platforms throughout Hesse and east as far as the Thüringerwald and the Frankenwald. Beyond the Jura the strata dip gently towards the basins of the Naab and the Danube. These Mesozoic (Triassic and Jurassic) deposits were laid down in shallow seas that advanced and retreated with varying depths between one land mass to the southwest and another to the northeast, so that the axis of the sea reached from northern France to the south of the Bohemian Massif. The sea persisted longest in the southeast where chalk was laid down and is still preserved in the Oberpfalz, the Swiss Jura, and the Alps. The secular uplift of these horizontal strata resulted in differential erosion that continued without interruption from Jurassic into Tertiary times. The process of erosion, with the backward recession of the scarps, had gone far before the formation of the crack of the Rhine Rift.

Movements in the Oligocene and Miocene periods resulted in the present relief. These movements were associated with the Alpine uplift. Extensive west–east upfolds occurred in the Vosges and Black Forest and in the Hardt-Odenwald-Spessart, while between these two upfolds stretched a depression with its axis on the Zabern Pass and the Kraichgau in which younger sediments have been preserved from erosion. In the uplifted areas the rocks were heavily eroded and the pre-Triassic peneplain of the *Grundgebirge* was exposed. These older and more resistant blocks resisted folding, but fractured so as to form uplifted tilted blocks (*horsts*) and sunken troughs (*gräben*) and well-marked fault scarps. It was at this time that the formation of the north–south crack of the Rhine Rift commenced, with the accompanying uplift of the blocks or horsts on either side of it. The Thüringerwald is a narrow horst block. The Böhmerwald and the Bäyerischerwald have a succession of parallel step faults running northwest to southeast so that the blocks have steep fault-scarp-slopes to the southwest and a gradual tilt to the northeast. The Fichtelgebirge has intersecting faults and its keel is tilted up to the highest altitudes at its western end and slopes gently inwards. The uplands bordering the Rhine trough have steep fault scarps facing inwards and gradual-tilted slopes outwards.

The Oligocene coastal deposits herald the beginning of the formation of the Rhine Rift and these deposits reach from 450 m. above to 1,600 m. below sea-level. The formation of the Rift proceeded in stages, uplift

alternating with long periods of stability and erosion, during which the highlands were denuded and the basins filled in with the detritus. The Upper Miocene and Lower Pliocene was a long period of stability during which valleys were widened and a distinct peneplain level formed in the flanking highlands. At this time there was not such a sharp contrast in altitude between the southwest and the southeast of Germany. Moreover, the Mesozoic sea, that had steadily retreated southeastwards, now in Tertiary time occupied the geosyncline on the northern border of the Alpine mountains. At the same time a sea spread over the site of the Rhine Rift. Thus the drainage of the whole area was either to the one sea or the other. At this time the rivers rose far to the northwest, on the slopes of the Black Forest, and drained down the dip slope to the sea on the site of the present Danube plain. As this sea was filled the Danube gradually picked its course across the plain cutting through the older rocks where it impinged on the Jura. As the Rhine Rift sank, however, and as the Danube sea was filled, the cutting power of the northerly flowing rivers was increased and they captured the headstreams of the southerly flowing streams. This process has continued since and may still be observed today. The watershed has shifted towards the south and southeast, and, further west, the waters that formerly drained southeastwards across the Burgundian Gate were eventually diverted northwards to form the present course of the Rhine.

Erosion since the Pliocene has been relatively small and there has been little earth movement. Earth movements have continued on the borders of the Rhine Rift; and glacial deposits are to be found near Heidelberg 300 m. below sea-level. Glaciation affected the Bavarian plateau but the highland blocks had only very small local glaciers. In the sheltered lowlands and valleys wind-blown loess deposits were widely spread, especially in Swabia, Franconia and the Rhine valley. These deposits were high-water muds (*Hochwasserschlamm*) that were redistributed by the winds in the severe, dry winters. At the same time dunes were formed in the low-lying valley areas as in the lower end of the Rhine Rift valley.

We may now turn to a brief portrayal of the land forms of the three main units of southern Germany: the Rhine Rift and its flanking highlands, the scarps and vales of Swabia and Franconia, and the Bavarian Plateau.

The *Upper Rhine Plain* extends for two hundred miles from Basel to Bingen and has an average width of twenty-five miles. The Plain is embraced by wooded highlands to east and west and is barred to the north by the Taunus-Hunsrück and to the south by the Jura. Lowland routeways in breaks between the several highlands, as well as the valley of the Rhine itself to north and south, afford exits from the Plain. It is a nexus of natural routeways with outstanding foci in the north, centre

and south. Of these the Mainz-Frankfurt focus in the north is the most important. These lowland exits are the Wetterau in the northeast, the Belfort Gap in the southwest, the Kraichgau in the east-centre, the Zabern Gap in the west-centre. The Naahe valley to the west, and the narrow valley exits of the Rhine, Main and Neckar, cut through the engirdling highlands.

The Rhine Plain is a deeply sunken trough, bordered by the fractured edges of the highlands. It has been filled to great depths with alluvial sands and gravels, into which the Rhine has incised its shallow bed. There is in consequence a north–south alignment of terrains. These are the foothills, the loess platforms, the diluvial terraces, and the alluvial plains of the present river-beds.

A blanket of loess covers considerable areas of the low terrace between the central plain and the foothills. It is especially extensive on the western side from the Rhine-Hesse uplands southwards to the area that lies immediately behind Strasbourg. It provides this city with dry inland connections with the Zabern Pass direct from its site on the banks of the Ill near its confluence with the Rhine. On the east side of the Plain the loess deposits occur as a few patches in Breisgau, but are unimportant to the north.

Highlands flank the Plain to east and west. The Black Forest extends from Basel to Pforzheim but the rough highland relief ends with the Murg valley. Its valleys drain partly to the Rhine and partly to the Neckar, but several small rivers drain south to the Swiss Rhine. A main river, the Murg, drains to the north on the eastern margin of the highland, while the Kinzig and the Dreisam penetrate deeply into the highland from the Rhine Rift and afford the chief routeways across the highland. Physiographically, the Black Forest has its nucleus in the rugged granite highland, whose rounded summits reach their highest altitude in the Feldberg (1,493 m.), and north of this point summit levels have a remarkably consistent height of 900–1,000 m. Northwards, however, the name Black Forest also includes the wooded plateau of horizontal sandstone that caps the pre-Hercynian base (the crystalline *Grundgebirge*) west of the Murg valley.

Between the Black Forest and the Odenwald there is a zone of open undulating country that has a floor of Muschelkalk limestone and a cover of loess. It drops by 100 m. to the Rhine Plain and slopes gently eastwards where it is bounded by the valley of the Neckar-Enz, sunken by some 150 m. This is a structural continuation of the Zabern *Bruchfeld* behind Strasbourg on the opposite side of the Plain. It is called the Kraichgau. The Spessart and Odenwald correspond in location and character with the Haardt on the west side of the Rift. They are plateaus of horizontal sandstone that are cut by the gorges of the Main and the

Neckar and merge northwards, beyond the Kinzig valley, into the wooded volcanic uplands of the Vogelsberg and Rhön. In the western Odenwald and Spessart the crystalline rocks come to the surface and give rise to a much more dissected undulating country than the sandstone plateau.

The *Pfälzer Wald* (*or Haardt*) extends from the Zabern Pass to the scarp that overlooks the Kaiserslautern-Landestuhl trough. Its high scarped edge overlooks the Rhine Plain from heights of 600–700 m., while its long dip slope results in a well-wooded sandstone plateau. The sandstones are in parts deeply weathered to give rise to bizarre castellated forms. The valleys in the south reach softer red sandstones and are broader than the valleys in the north, that are deeply cut into the Bunter sandstones. The east–west scarp to the north (where Muschelkalk caps in part the main outcrop of Bunter sandstones) overlooks the trough of the *Pfälzer Gebruch* beyond which lies the *Pfälzer Bergland* or Saar-Nahe Uplands. This latter is a zone of relatively open, undulating country, 30–40 km. wide, that lies between the Haardt and the Hunsrück and is drained eastwards by the Naahe river. It is formed of Permian marls and Carboniferous clays so that it has a gentle relief of 200 m. in depth as compared with 300–500 in the Haardt. Resistant volcanic rocks stand out from this lowland as steep-sided wooded ridges.

We may next turn to the *South German Scarplands*. The scarplands between the Black Forest-Odenwald-Spessart and the Bohemian Massif and the Danube are marked by a sequence of gently sloping geological deposits from west to east that embraces the whole of the Triassic series. The details of the succession and the types of relief and land use associated with them are indicated in the table at the end of this chapter.

The whole of this area is divided into two sections by the east–west zone of Keuper sandstone hills, from Heilbronn to Crailsheim, south of which lies the Swabian area of the Neckar basin, and north of which lies the Franconian area of the Main basin. Heilbronn and Hall command gaps in this west–east line of hills where the Neckar and Koch rivers enter the lowlands on their northward course. In the Neckar basin there are the open undulating surfaces of dry limestone and gypsum marls country that is often covered beneath a blanket of loess. These are known in the Neckar basin to the south as the *Gäue*. In the Main lands to the north these areas are wider and bear such names as Hohenlohe Ebene, Taubergrund, Bauland and Grabfeld. The valleys are usually quite clearly defined, well sunken to a depth of 50–100 m. with steep sides. Here concentrate vineyards, in contrast to the arable lands on the plateaus. This zone is limited to the east in the Franconian section and to the southeast in the Swabian section by the much-broken sandstone hills, wooded and moist, with scarp slopes facing to the east. These are the Keuper sandstone hills that are referred to individually as *Berge*.

The sandstones are often overlain by impermeable marls. These give rise to wooded and marshy lands east of the Frankenhöhe and Steigerwald, sloping to the depression of the Rednitz valley. Next to this zone of broken hills in the Neckar basin and lying on their eastern slopes are open undulating lowlands that lie between these hills and the next great dissected scarp to the east. This zone is called locally in Swabia the *Filder*. The name may be given to the whole of this belt at the foot of the Alb scarp. Next to it to the east is the deeply dissected scarp front of the high Alb.

The *Alb* is some 40 km. wide. In the Neckar basin it is a zone with a frequent alternation of outlying plateau remnants, deep valley floors and re-entrants, and long irregular slopes that vary according to the outcrop of the horizontal strata. The whole scarped zone has a depth of dissection of 500 m. and over (altitudes of 800–1,000 m. in the plateau down to 400 m. in the valley floors). The Alb is a high limestone plateau that engirdles the whole area of the Neckar and Main we have so far considered. It is undulating and waterless, with shallow dry valleys, deeply incised master valleys, and some small volcanic hills (laccoliths). Beyond the Franconian Jura is the lowland trough of the Naab, beyond which again rises the wooded and often boggy highland of the Böhmer Wald, the Fichtelgebirge, and the Thüringer Wald. The Naab lowland is mainly undulating lowland with heavy loam and clay soils. It is wet, strewn with lakes and thickly forested with coniferous trees. It is comparable to the country on the Keuper marls west of Bamberg and Nuremberg. The Swabian Alb dips gradually southwards to the Danube. Its surface is interrupted by the fertile lowland of the *Ries* that lies as a circular depression, and is probably a gigantic volcanic explosion crater, at the junction of the Swabian and Franconian Jura.

The *Bavarian Plateau* has been built up by glacial deposits, laid down by valley glaciers and fluvio-glacial rivers, issuing from the Alps, on the preceding relief on the Molasse deposits. Thus, we are able to distinguish several clearly defined west–east belts of country. There are the uplands of Lower Bavaria, developed on the pre-glacial surface of the molasse beds, that stretch from Augsburg to Linz. The Iller-Lech Plateau contains a frequent alternation of broad valley floors incised into a raised platform of old sands and gravels. The zone of morainic country, with hummocky moraines and marshy floors and bogs and lakes behind them, runs from west to east as the so-called Upper Swabian-Upper Bavarian Uplands. The plain of Munich forms a distinctive element here. It is the most extensive of the plains of gravels and sands that were laid down by the rivers issuing from the Ice Sheet (*Schotterfeld*). Similarly distinctive are the areas of flat bog-land that form a series along the Danube lowland to the north—the Donauried, Donaumoos and Dungau.

THE BAVARIAN ALPS (Fig. 4)

The Alps extend along the south of the Central Uplands between the latter and the Po basin. The German-speaking peoples cover a major part of this great area that includes two-thirds of the population of Switzerland and the great part of the population of Austria, including the Drave valley and the southern Tyrol south of the Brenner Pass. But only a small section of it lies within the frontiers of Germany. In the Austro-German section or the eastern Alps, east of the St. Gotthard Pass, an east–west alignment is characteristic of the relief features and of the drainage. A greater central belt of lofty mountains is bordered by wide valley troughs to the north and south and these in turn are succeeded by belts of lower, forested limestone and sandstone plateau blocks that are broken into segments by transverse valleys. The Bavarian Alps embrace a section of the northern part of these two outer belts of the so-called Prealps. The frontier pursues a sinuous course between Lake Constance at its western end at Bregenz to a little west of the Salzach valley where it quits the Alps to follow northwards the valley of the Salzach. The frontier does not follow the watershed throughout. South of it lies the trough of the Inn valley. Crossing the Prealps, the frontier includes on its northern side the embayment of the upper Iller, that embraces the district known as the Allgäu, then crosses the upper valley of the Lech and the headstreams of the Isar as far as Kufstein on the Inn. Beyond here it again crosses the heads of northward-flowing rivers and finally makes a southerly embayment to include Berchtesgaden on the west side of the Salzach before turning north.

There is a great diversity of relief in this narrow strip but its outstanding feature is the dominance of limestone country. These limestone rocks are practically horizontal and form block-like plateaus that are heavily forested, or even barren karst, and patches of cultivated land are a rarity. Moreover, with the exception of the Allgäu, there is little use made of the higher summer pastures owing to the shortage of water. A quarter to a third of the whole area is unused.

The mountains are arranged in *culées*. In the foreland, broad, wooded, but partly cultivated uplands are cut by valleys into separate blocks, rising from the plain by 300 to 600 m. In the west, the uplands consist of sandstones (Molasse, Nagelfluh, and Flysch). Behind these rise long ridges of limestone and dolomite, that are cut less frequently by deeper and narrower valleys. Here occasional summer pastures rise above the tree-line and bare rock slopes also occur. The maximum heights reach 1,800 m. Behind these again rise great grey rock slopes which hold snow in patches right through the summer. They consist of limestone and reach altitudes of 2,000 m. but nowhere reach 3,000 m. These peaks

alone can be reckoned with the Hoch Alpen or High Alps. The remainder are within the Voralpen or Prealps. Longitudinal valleys also emphasize this arrangement of the relief, that is in considerable measure an adjustment to the east–west folding that increases in intensity southwards. Eastwards the northern outer zones gradually fade out beneath the Bavarian Plateau and are succeeded by ranges that push northwards. Thus, the molasse zone, that reaches heights of 1,800 m. in the Allgäu, disappears eastwards. East of the Kochel See the Flysch sandstone zone pushes north by 10 km. finally to disappear eastwards near the Chiem See. The limestone zone, that stretches right to the schist zone to the south, is reduced eastwards near the Chiem See by the northward extension of foreign structural elements from the south.

The rocks and their folds are varyingly affected by the forces of erosion. More noticeable than in the Swiss Alps are the evidences of a preceding peneplain level. These levels are well preserved on the limestone plateaus in the eastern section. More recent uplift and renewals of the cycle of erosion have accentuated the differences in the lithological character of the rocks and dissected the old surfaces. The uplift has, however, been uneven, so that the Aarlberg Pass is an area of strong uplift, whereas the longitudinal valleys and the transverse gorge of the Inn at Kufstein and the area of the Seefeld saddle are areas of lesser uplift.

The outer edge of the Bavarian Alps has much the same rainfall as northern Switzerland. The high ridges have a rainfall exceeding two metres. Only in the longitudinal valleys of the Inn do dry areas occur, as in the Graubünden and Wallis of Switzerland. There is a low snow line (1,300–1,100 m.) and local glaciation occurred in the Allgäu, Schliersee and Chiemgau Alps. Valley glaciers occupied the small valleys but great valley glaciers extending from the Central Alps filled the longitudinal troughs and spread outwards across the low passes. Little ice reached the foreland in the first two ice phases, but in the later Riss period the valley glaciers spread over the low passes to merge with those of the Isar and Lech. On the limestone ridges there are series of cirques and greatly over-deepened U-shaped valleys. On the highest plateau levels there occur karstic features. Rock and screes often fill the valley floors, to the extent of a quarter of the whole area of the north Tyrol limestone Alps, and a third of the Salzburg High Alps. In the Allgäu the Flysch and Lias schists mountains are covered with woods and rich in water. They have frequent land slips and numerous small valleys make travel more difficult than on the limestone country.

The political frontier pays little attention to the detailed course of the watershed of the Inn and the northward-flowing valleys. It crosses highland blocks and the transverse valleys at valley narrowings. Indeed, it was at these valley constrictions that the frontier was first fixed, for the

valleys were the lines of Germanic penetration from the north and from the Inn valley to the south. In the highland between these valleys, the frontiers were never clearly defined. Even in the eighteenth century there were ill-defined and disputed stretches. A side valley on the Iller was settled from the Vorarlberg and it belongs politically to this area, though it lies in the German customs union. The upper Lechtal was settled from the north but it has easy connections with the south to the Tyrol through the Fernpass. East of the Inn the river Ache and the Saalach cross the whole limestone zone and bring north Tyrol into close contact with old Bavaria and Salzburg, but only that portion belongs to the Reich that gravitates northwards.

APPENDIX. GEOLOGICAL TABLES

Geological Sequence in Germany (after W. Schriel's Geological Map of Germany, published by the Prussian Geological Society, 1930, on a scale of 1 : 2,000,000.)

Period	*Rock Types*
Plutonic	Granite, gabbro
Flow Rocks and Tuffs	Old: Porphyry and dolerite
	Middle-aged: Porphyry with porphyrite, melaphyre
	Young: Liparite, trachyte, and some andesite, basalt
Crystalline Basement	Schist and gneiss
Pre-Cambrian	Algonkian: Phyllite, quartzite, greywacke, limestones
Cambrian	Slate and quartzite
Silurian	Sandstone, quartzite, limestone
Devonian	Lower: Quartzite, and slate in Rhineland, Westphalia, Hesse and Nassau
	Limestones and slate in Kellerwald, Lower Harz and Bohemia
	Middle: Limestone
	Upper: Limestone, marl and sandstone
Carboniferous	Lower: Culm and Carboniferous. Chert slate and greywacke
	Upper: Sandstone and shale, coal-bearing
Permian	Lower: Rotliegendes. Sandstone, shale and conglomerate
	Upper: Zechstein. Conglomerate, shale and magnesian limestone with beds of gypsum, anhydrite and salt, etc.
Trias	Bunter: Sandstone
	Muschelkalk: Limestone
	Keuper: Sandstone and shale with gypsum
Jurassic	Lower: Black (Lias). Shale, marl and limestone
	Middle: Brown (Dogger). Shale and sandstone in south Germany, shale in north Germany
Cretaceous	Lower (Cenomanian, Turonian, Emscher, Senomian, Danish): Sandstone, clay and conglomerate
	Upper: Limestone and marls with some sandstone
Tertiary	Old (Eocene, Oligocene): Clays and sands with some sandstones, and lignite. In the Alps the old Tertiary rocks are phyllites and sandstones
	Young: Miocene, Pliocene
Quaternary (Pleistocene)	Diluvium: Old Drift Deposits
	Young Drift Deposits
	Valley Deposits
	Peri-glacial Deposits (Loess)
Alluvium	

The Rocks of South Germany (after N. Krebs, *Der Südwesten: Landeskunde von Deutschland*, pp. 8–9)

Period	*Rock Type*	*Land Forms*	*Land Use*
Archean and Paleozoic	Gneiss, Granite Schists	Impervious. Varied resistance to erosion	Upland, forested with meadow, poor farmland
Permian	Rotliegendes: Conglomerates and Clays	Impervious	Spring lines. Cultivated land
Lower Trias	Bunter Sandstone	Pervious. Scarp-former	Forested, lacking in surface water. Late settled
Middle Trias	Muschelkalk	Pervious	Agricultural. Often stony heath. Early settled
Upper Trias	Lettenkohlen	Loamy, easily eroded. Plain	Cornland
	Gipskeuper	Clay. Rich in water	Orchards and vineyards
	Upper Keuper	Mainly pervious sandstones and scarp-formers	Much forest. Poor soils
Lias and Dogger (Black and Brown Jura)	Mainly clay with limestones and sandstones in Middle Dogger	Rich in water, differential erosion, hard Dogger beds forming a scarp	Horticulture and orchards, fertile. Liable to landslips
Malm (White Jura)	Resistant limestones and Dolomites	Pervious, resistant, scarp former	Scarp slopes forested with heath and poor cultivation on the plateau
Cretaceous (Kreide)	Mainly sandstones and clays	Partly pervious	Much forest
Oligocene in Upper Rhine and Miocene in the Alpine Foreland	Conglomerates, sandstones, sands, clays. Basalts and phonoloth eruptives	Varied resistance. Eruptives resistant. Differential erosion	Fertile, open landscape
Pliocene and Dilivium	Gravels, sands. Moraines. Loess	Easily eroded, pervious, except moraines and clays	Often well drained, fertile and closely settled
Alluvium	River deposits	Water table near surface	Fertile, when not waterlogged:

Physical Evolution of North Germany (from Schrepfer, *Der Nordwesten: Landeskunde von Deutschland*, p. 23)

Period	*Physical Evolution*
Cambrian, Silurian, Devonian	Marine sediments. Pre-Variscan folding.
Lower Carboniferous to Upper New Red Sandstone (*Rotliegendes*)	Six phases of Variscan mountain folding. Deposits on northern border and in interior basins of the Saar. Post-Kulm granitic intrusions and New Red porphyries. Peneplanation (Permian)
Permian (*Zechstein*)	Marine Transgression. Formation of salts
Triassic and Jurassic	Orogenetic stability. Epeirogenetic depression in Hesse and Thuringia (sedimentation) and uplift in the Rhine Massif.
Brown Jurassic	First appearance of the Lower Saxony coastline between the North German basin and the Central German land mass.
Kimmeridge, Portlandian, Wealden	First phase of the Saxonian folding in the Teutoburger Wald.
Cenomanian	Southerly transgression of the Cretaceous sea.
Emscher. Lower Senonian	Subhercynian phase of the Saxon folding.
Upper Senonian	Uplift of the old massifs.
End of Mesozoic to Lower Tertiary	Formation of the pre-Eocene peneplain. Lignite deposits.
Middle Oligocene	Rupelton sea transgression.
Upper Oligocene	Savian phase of the Saxonian folding.
Lower Miocene	Styrian phase of the Saxonian folding.
Upper Miocene	Faulting of the Leine trough.
	Basalt eruptions. Browncoal formations in the Central Uplands.
Old Pliocene	Young Tertiary peneplain with various peneplain levels and scarps. Beginning of present-day development of land forms (high terrace gravels)
Young Pliocene, Old Diluvium	Strong orogenetic movements. Uplifts in the *Schwelle* and subsidence in the *Tiefland*.
Diluvium	(*a*) *Flachland*—glaciation of the Elster and Saale phases. Peri-glacial forms. Loess formation and valley formation in the latest Vistula phase. (*b*) *Gebirgsschwelle*—river erosion and formation of terraces. Erosion of depressions and accentuation of scarps and faults, etc. Vulcanity (*Maare*) in the Eifel.
Alluvium	Present valley floors. Marsh and coastal features.

CHAPTER 3

CLIMATE, SOILS AND VEGETATION

GENERAL

THE GERMAN lands occupy the central part of the great Deciduous Forest Belt. This belt, like the climates with which it is associated, is found south of the Coniferous Forest Belt, that is to say, south of latitude 60 degrees. The Deciduous Forest Belt merges to the south on the southern slopes of the Alps into the drought-resistant, evergreen shrub vegetation of the Mediterranean lands, and to the southeast on the periphery of the eastern Alps into the grasslands or steppes of the Danube lowland. A steppe flora and open parkland were dominant in the Danube lowlands and in the eastern part of the Carpathian Foreland at the dawn of the Christian era, and remnants of such a steppe flora have been preserved since the Ice Age on warm and dry soils in the sheltered lowlands of the Central Uplands.

The character of the vegetation cover throughout the Deciduous Forest Belt so defined has been profoundly transformed by man through the destruction of the forest and the changing sequence of his crops and methods of cultivation. The whole area is today one of forest, meadow and small grain crops. As opposed to the parched, dry Mediterranean lands to the south, it is a land of summer moisture and green. But western Europe, central Europe and central Russia each have broad and markedly contrasted features of vegetation and climate.

Central Europe as a whole is clearly limited to the north, roughly along latitude 60°, by lands with a cover of coniferous forest in which the winters are too long and cold and the summers too short and cool for the cultivation of crops. It is limited to the south by the lands with moist mild winters and hot dry summers. To the east, in the trunk of Europe, between the Baltic and the Black Seas, winters become more severe and longer. Precipitation is markedly concentrated in summer, but there is also winter precipitation falling as snow with a long period of snow cover. A definitely maritime climate prevails on the coasts of northwestern Europe, but eastward, through central Europe, continental conditions gradually become more marked. These continental conditions, that are fully developed in central Russia, are associated in particular with the growth of the oak tree, whereas the milder climate associated with oceanic influences has the beech as its characteristic tree. The extreme "oak-climate", however, extends westwards into central

Europe to include the whole of the Carpathians south as far as the Danube as well as the highlands that encircle the Bohemian Massif and the Harz Mountains. The rest of central and western Europe has a "beech-climate", since it experiences mild and moist winters and warm and moist summers, features that become more pronounced westwards as the seas are approached. In central Europe, the oak climate (Dfb according to the Köppen classification of world climates) merges into the beech climate (Cfb) in a zone through Magdeburg, the Rhön and Milan. In the highlands east of this zone, the oak climate lies above the beech climate; but west of this zone, owing to milder temperatures, the oak belt disappears and the beech climate passes directly in higher altitudes into the so-called birch climate (Dfc), with less than four months with an average temperature above 10°C.

Within this general framework, we may now consider Germany and its neighbours in more detail.

CLIMATE

Temperature and rainfall are the two main constituents of climate and their variations from season to season are the product primarily of location and altitude.

Temperature. With regard to temperature conditions, we must first note the effects of oceanic and continental conditions. Oceanic influences on temperatures are most effective in winter. The actual mean monthly isotherm of 0° C. or 32° F. for January cuts right through Germany from Denmark southwards. The mean monthly temperature in the hottest month of July is highest in the continental areas in the lowlands in southern and southeastern Germany. That oceanic influences predominate in west and northwest Germany more strongly than in the south and east is shown by the range of temperature. Münster has a temperature range of 16·5° C., Magdeburg 18·6° C., Grünberg in Silesia 19·6° C. and Munich 19·8° C. The winter temperatures in southern Germany are markedly colder than in the Northern Lowland owing both to its greater remoteness from the sea and to its higher altitudes. The temperature regimes month by month for typical stations are given in the table on p. 64.

The length and warmth of the growing season is one of the most important facts of temperature in relations to human activity, especially to agriculture. This is revealed by the date of the blossoming of the apple tree and also by the date of the harvest of winter-sown rye. (Figs. 6 and 7.) The time of the flowering of woody plants may be taken as the onset of spring. This is earliest, April 22–28, in the Rhine valley from Basel to Cologne, and in its tributary Neckar and Main

valleys and the Moselle. Spring begins a week or so later (April 29–May 5) in the chief valleys of the Central Uplands and in the Danube valley below Regensburg, and throughout the whole of France and the Low

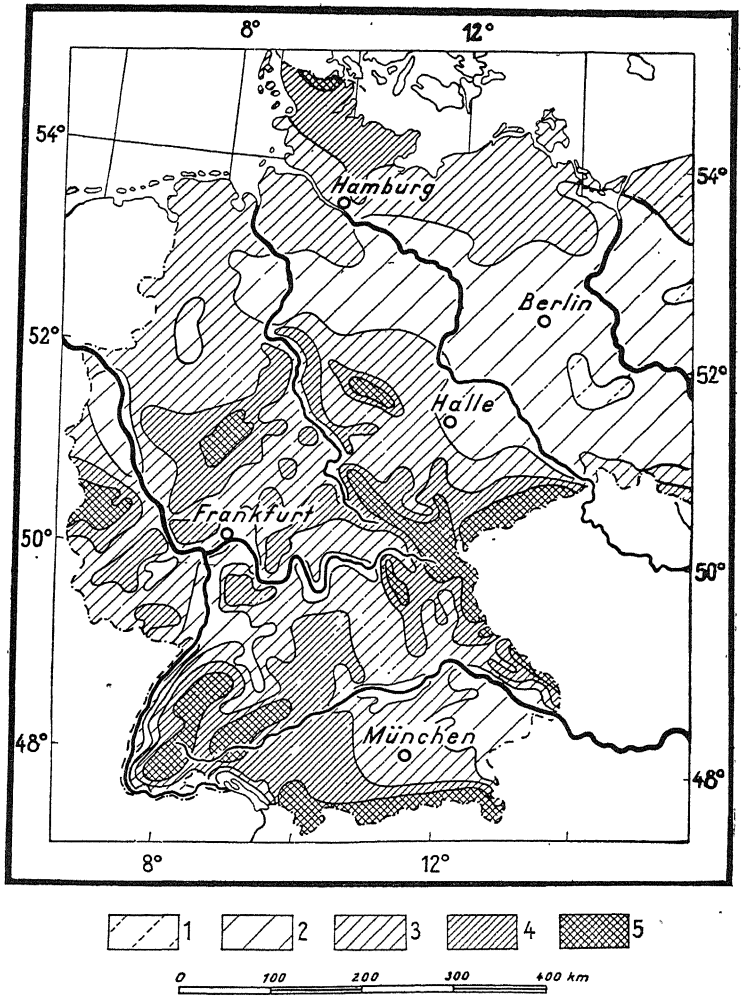


FIG. 6—GERMANY: BEGINNING OF APPLE BLOSSOM (1936)
(from *Amt für Landeskunde*) (scale, 1 : 12 m.)

1. Before 30 April
2. 30 April–9 May
3. 10 May–19 May
4. After 19 May

Countries and most of the Danube Lowland to the east. It is later, from May 6 to 12, in the west of Germany. The mean annual number of days with frost is also an important climatic fact of vital importance to human activity. This period is longest, over 120 days, in the extreme south of

Germany, in the Black Forest and Vosges and the Bavarian Plateau; while most of south Germany, the east of Brandenburg, Pomerania, and Silesia have 100–120 days of frost. On the other hand, less than 60 days

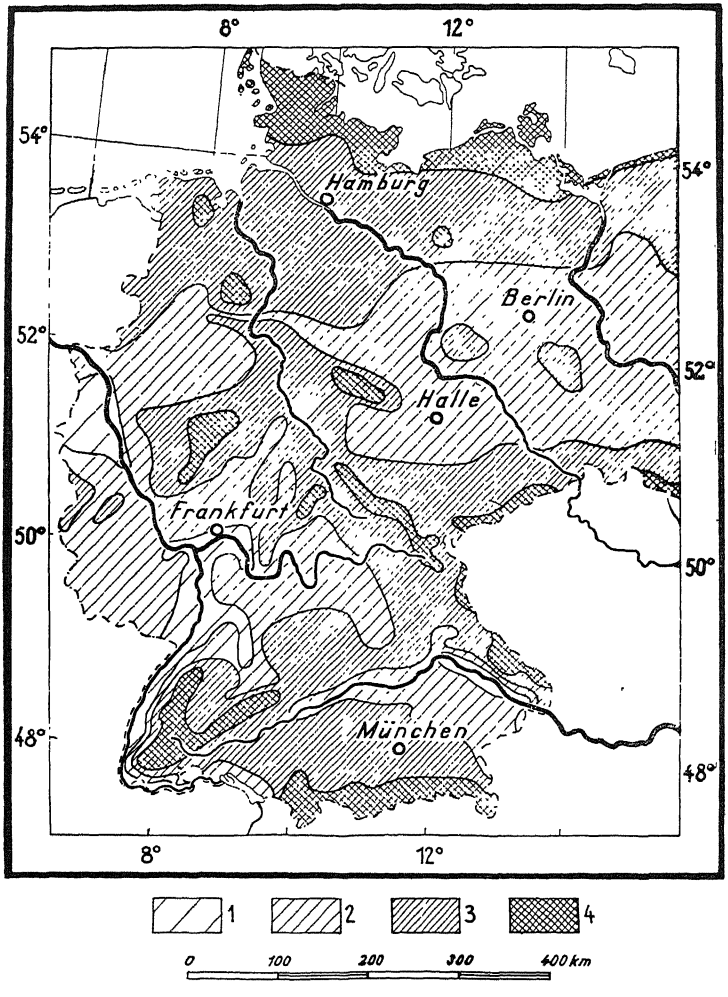


FIG. 7—GERMANY: BEGINNING OF THE WINTER RYE HARVEST (1936) (from *Amt für Landeskunde*) (scale, 1 : 12 m.)

1. Before July 9
2. 9 July–18 July
3. 19 July–28 July
4. 29 July–7 August
5. After 7 August

of frost are recorded in the northwest, the Rhine valley and the lowland on the northern edge of the Central Uplands.

Rainfall. The distribution of the annual rainfall is shown on Figs.

8 and 9 for the whole of Germany. These maps reveal the very marked effects of altitude, and of western (oceanic) and eastern or interior (continental) conditions. The Northern Lowland, west of the Harz, Thuringian Highland and Mecklenburg, has a rainfall of 600–800 mm. per year, while the whole of the eastern portion, continuing right through Poland, has a smaller total of 500–600 mm. Autumn and winter in the northwest

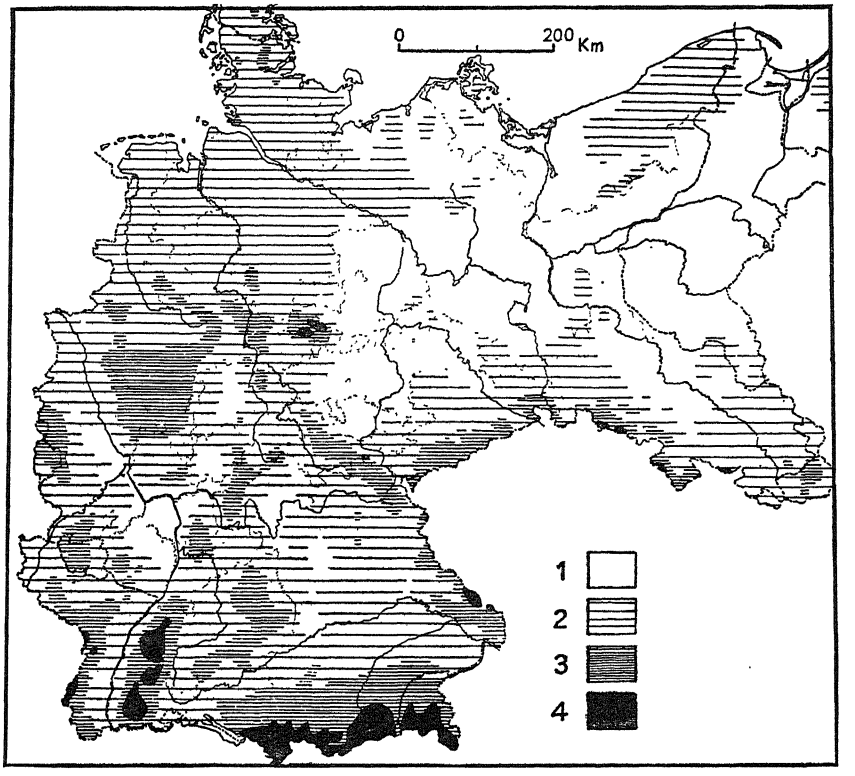


FIG. 8—GERMANY: MEAN ANNUAL RAINFALL (*from Hellmann*) (scale, 1 : 10 m.)

1. Up to 600 mm.
2. 600—800 mm.
3. 800—1400 mm.
4. Over 1400 mm.

is mild and wet, and skies are often overcast, whereas in the east there are long periods of hard frost, the air is crisp and dry, and there is more sunshine. The wetter and more overcast conditions in the northwest during the winter months are due to the deep spread of oceanic influences from the west, whereas eastwards continental conditions become more pronounced. In the Central Uplands, the highest rainfalls of 800–1,500 mm. and over are recorded in the main highland massifs. The areas of medium altitude have an annual rainfall of about 600–800 mm. The driest areas

with only 500–600 mm. and even under 500 mm. lie in a few areas that are all located in the low-lying and sheltered lowlands and basins. In western Germany these are the great Upper Rhine Plain (especially in the northern end), the middle basin of the Main river, centred on Wurzburg, the uplands that flank the Rhine gorge below Bingen, the lowland of the Cologne Bay, below Cologne, and the Hesse lowland centred on Kassel. Other areas that are not quite so dry are found in the Danube valley in Bavaria and in the Naab lowland north of Regensburg.

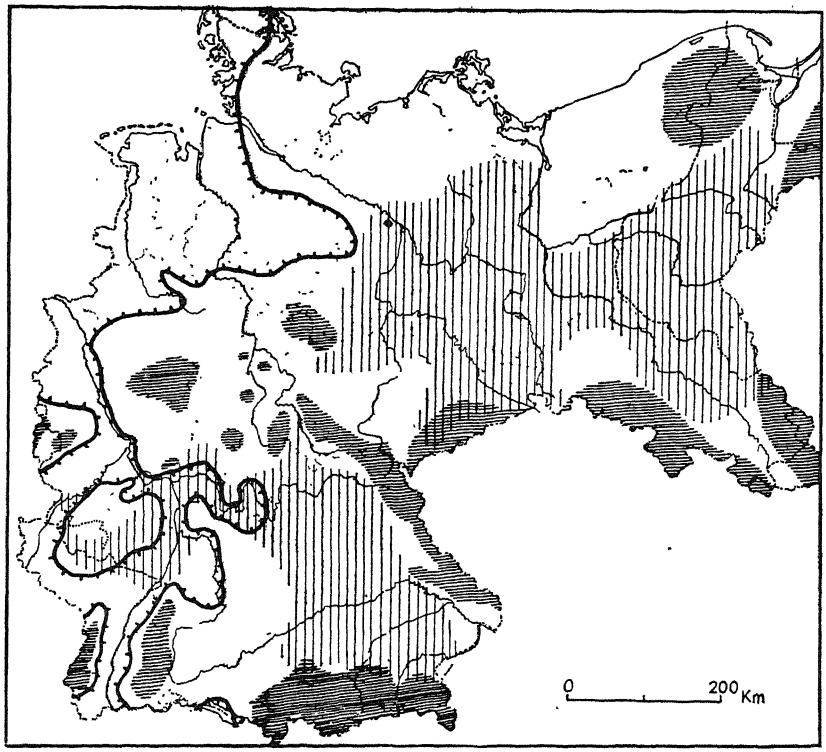


FIG. 9—GERMANY: SNOWFALL AND HUMIDITY (*from Hellmann*)
(scale, 1 : 10 m.)

Horizontal lines are areas with at least 50 days of snow per year. Vertical lines are areas with a relative humidity of 72% and less in the months of June, July and Auugst. The black barbed lines enclose areas with a maximum of 30 days of snow.

Increasing distance from the sea results in a decreasing total rainfall in the Northern Lowland from west to east, so that one passes from the areas with pastoral farming, based on meadows and fodder crops, to the great arable areas of east Germany and Poland, from the realm of deciduous woods in the west to the realm of coniferous woods in the east. The coastlands of the Baltic are relatively moist since the contrast be-

tween land and water favours rains in late summer. The small water-bodies of the Belt and the Sund at the southern end of the Baltic Sea do not appreciably affect the rainfall, so that with increasing distance from the North Sea the annual total decreases. Cyclonic frontal rains appear, especially in Schleswig-Holstein, while rains in the rear of cyclones bring lesser rains to Denmark and Jutland. Thus, meadow and heath on the Jutland peninsula stand in marked contrast to the barley-growing arable lands on both sides of the Fehmarn Belt. Orography too affects the rainfall in northern Germany. The dry areas in the great valleys stand in contrast to the areas of slightly heavier rain on the morainic platforms. Soil and climate here account for the deciduous and spruce woods, while the dry sandy areas in the lee of the uplands have pine forests. Meadows and oats are more important on the higher land, while in the dry areas rye and wheat, sugar-beet and tobacco flourish. Small areas with rainfall less than 500 mm. occur in Pomerania and Brandenburg, but in Poland they cover a much larger area.

The Central Uplands have marked contrasts between upland and lowland. But distance from the sea is also apparent as an influence. The Ardennes, Eifel and Sauerland, 600–800 m. above sea-level, have the same rainfall as the Sudetes and Carpathians at 1,600–2,000 m. The rainfall of the Vosges and Black Forest exceeds the rainfall of the Böhmerwald and the Slovakian uplands at the same altitude. The precipitation of the lowlands and valleys depends on both their relief and the degree of exposure to the Atlantic. In Alsace and in the Rhine lowland of Hesse the driest areas have less than 500 mm. as in northern Bohemia and southern Moravia, and around these islands are areas with 500–600 mm. which include the district of Düren and the Maifeld in the Rhine Massif, Kurhessen and the Wetterau, Lower Franconia, the Nuremberg basin and the Egerland. The dry conditions of eastern Germany penetrate to Thuringia and Silesia, where distance from the sea and protection by encircling uplands result in a rainfall of under 500 mm. All these areas have high agricultural importance, based on barley and wheat, sugar-beet and the vine, merging in the south into areas of maize cultivation. The mountains, however, carry spruce and fir forests. They form the sources of the numerous rivers and streams of central Germany that are used for drinking purposes as well as for industry and, in some cases, for the irrigation of river meadows.

The Alps have the heaviest rainfalls. The mountains have a rainfall over 3,000 mm. but the valleys between the ranges have a small rainfall as in Valais, Oberinntal, Vintschgau, and the Dora Baltea where even irrigation is essential for cultivation. The southern Alps of the Oetztal and Stubai, protected by the northern and southern limestone Alps, as well as the uplands behind Genoa and the head of the Adriatic, have

totals on their summits of only 1,600–2,000 mm. Totals decrease eastwards with altitude and in the areas of the eastern borderland of the Alps and in southern Styria and Slavonia the rainfall is only about 800 mm. This total is scarcely sufficient for agriculture (owing to the increased evaporation), whereas 600 mm. in the north is adequate for crop production. The Hungarian plain is dry, with less than 500 mm. in the Theiss valley. Rains are here heavier in the spring, when there are storms. A good deal of the rain is brought from the west by warm subtropical-continental air masses passing over cooler air masses. On this rain depend the staple crops of wheat and maize, that ripen well with the hot dry summer. The vine too grows in certain areas in this lowland. Rainfall occurs at all seasons with a marked summer maximum in June, July and August. Especially remarkable, as revealed in the table on p 65., is the late maximum (Sept.–Oct.) in the southern Tyrol and in the foreland of the eastern Alps, traits which are due to cyclonic disturbances that come from the Mediterranean basin. There are, in general, throughout west-central Europe two seasons of minimum rainfall, one in spring (April), that is an oceanic feature, and is found in the northwestern lowland, and the other in winter (Jan.–Feb.), that is characteristic of the continental conditions of the interior.

The period and depth of the snow cover during the winter months is of major significance to human activity. The snow cover is more a function of temperature than of precipitation. It decreases towards the oceanic northwest and increases toward the continental east and increases also in general with altitude. Thus, in Heligoland the snow cover lasts on the average for only 9 days, whereas in east Prussia, where continental influences are more marked, it lasts for 100 days. In Holland, as in the valleys of the Rhine and its tributaries, the snow cover lasts for under 20 days, and in the northwest generally and the Northern Lowland for 20 to 40 days. East of the Oder, however, the increasingly cold winters are reflected in a period of snow cover that lasts from 40 to 110 days. In general, in the heights of the Central Uplands, the snow cover lasts from 100 to 150 days. In the Feldberg in the Black Forest (1,493 m.) it lasts for 170 days, in the Erzgebirge at 1,215 m. for 175 days, and in the Schneekoppe in the Taunus (1,603 m.) for 206 days.

River Regimes. Another effect of climate on the surface of the land that affects human activity is the regime of the rivers and the periods during which they are frozen or obstructed by ice. High water on most of the rivers in Germany is in February and March, since they are fed by the melting snows and winter precipitation of the Central Uplands. Alpine waters, reaching their highest with the melting of snow and glaciers in late spring, feed the upper Rhine and the right-bank tributaries of the Danube. The Rhine has an Alpine regime at Basel and

the summer maximum is felt a long way down its course. The Danube has also an Alpine regime as far as Vienna. A March maximum is characteristic of the Ems, Weser, Elbe, Oder and Vistula. Ice cover on the rivers, when they are closed to navigation by ice, lasts 21 days on the Rhine at Cologne, 27 on the Ems, 37 on the Weser, 47 on the Elbe (at Magdeburg), 36 on the Oder, 93 on the Vistula, 102 on the Memel, and 27 on the Danube at Regensburg.

Navigation is rarely held up by ice on the shores of the North Sea, though severe spells, spreading over a few days, may come in from the east. Eastwards, on the Baltic shores, conditions are more severe, owing to greater exposure to continental conditions. Ice blocks the harbour at Wismar for 13 days, and at Stralsund for 27 days. Further east, ice begins to form in shallow water in early December, becomes continuous in January, and lasts until early March.

Volume, rate of flow, depth and period of freezing are all of great importance in considering the use of a river to man. The Rhine may be chosen by way of more detailed illustration.

The Rhine down to Basel is an Alpine river. Its waters are abundant, and at their lowest in winter. Below Lake Constance the river cuts through the limestone rocks of the Jura in rapids near Schaffhausen. The bulk of its Swiss tributaries like itself are fed by Alpine snows and glaciers and add to its summer high-level. At Basel the maximum flow is in July, although the low-level of winter, that is characteristic of the Alpine-fed river, is raised by water received from streams that rise in the Jura. Below Basel, the Rhine flows over a gravel-filled flood plain some two to three kilometres wide. Now all the tributaries rise in the adjacent uplands and are fed by winter precipitation and the early melting of the snows. These rivers are in consequence at their highest in spring and at their lowest in summer. Floods occur during the winter months. Yet in the Rhine gorge the river still shows evidences in its behaviour of its Alpine origin in the high summer level of its flow in June and July, whereas the second maximum due to waters derived from the Central Uplands is in the winter months. The Moselle, for example, has a marked maximum in the winter half-year and a marked and steady maximum in the summer half-year. On entering the northern plain, the June–July maximum is still evident, but the winter maximum from December to March is the chief maximum.

Regional Variations. We may conclude by briefly characterizing the regional variations of climate in the German lands. (Fig. 10.) These are the product primarily of the seasonal variations of temperature and rainfall, and these in turn depend on location and altitude. For this reason, the Northern Lowland shows gradual changes in its climatic characteristics, but contrasts are more varied and marked in the areas of greater

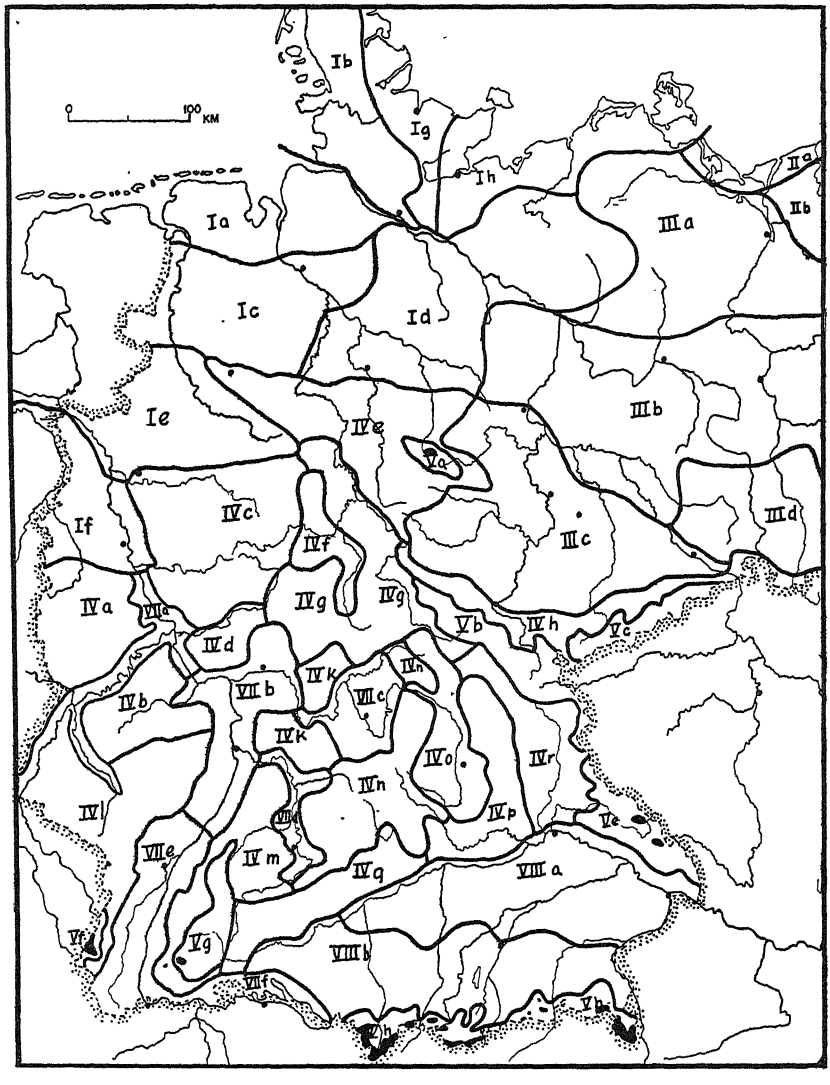


FIG. 10—GERMANY: CLIMATIC REGIONS (*from E. Werth*) scale, 1 : 6 m.)

1. North Atlantic Region
2. Baltic Region
3. Eastern Lowland Region
4. Central Uplands Region
5. Coniferous Forest Region of the Central Uplands
6. Alpine Region
7. Rhine Region
8. Swabian-Bavarian Plateau Region

This scheme corresponds with that listed opposite, though there are slight differences in the names of the regions. Sub-regions (small letters) are not listed.

variety of relief in the Central Uplands. The main provinces into which Germany may be divided from the standpoint of temperature and rainfall regimes, with typical stations, are shown in the table below. The characteristics of the climatic provinces are as follows (see Fig. 10):

(1) The Northwest Province, with its southern boundary stretching roughly from Aachen to the island of Rügen on the Baltic shores, has mild winters, cool summers, a medium rainfall, heavy cloudiness and high humidity (e.g. Bremen).

(2) The East Baltic Province shares the oceanic characteristics of No. 1 but differs from it in its colder and more continental winters and in its smaller rainfall (e.g. Königsberg).

(3) The Eastern Lowland Province lies east of the Harz and the Thuringian Highland, with its heart in the middle Elbe basin. It has warm summers, cold winters, with greater extremes as one goes inland and eastwards, a small rainfall (the smallest in Germany), low humidity, and a small cloud cover (e.g. Berlin).

(4) The Central Uplands Province extends south to the Alps so as to include the Bavarian Plateau. It is a zone of transition between the moist and mild climate of the maritime west, and the moist climate with cold winters and snow precipitation, and a rainfall maximum in the summer half-year, in eastern Europe. This eastern climate, that dominates central Russia beyond the waist of Europe between the Baltic and the Black Seas, penetrates into the Central Uplands in its highland areas and becomes less marked westwards. This is the "oak-climate". There are, however, marked contrasts between the lowlands (e.g. Bayreuth), that are drier and warmer with longer growing seasons, and the highlands (e.g. Freudenstadt), that are wetter and colder with shorter growing seasons. The temperature range in both lowland and highland becomes greater, and the incidence of summer rain becomes more pronounced, as one passes from the northwestern sector in the Rhine Massif to the southeast. The Bavarian Plateau (e.g. Munich) shows distinctive features due to its altitude and continental location. Its winters are colder and the precipitation heavier than at places of similar altitude in the Central Uplands.

(5) The Rhine, Moselle, Main and Neckar valleys have dry and relatively mild winters, an early spring, and a long hot summer (e.g. Freiburg-in-Breisgau).

(6) The Bavarian Alps and the northern Prealps in general receive a heavier total precipitation than the Bavarian Plateaus over a third of which falls in the months of June, July and August (e.g. Traunstein). In the southern Tyrol and the eastern Alps the season of maximum rainfall comes later, from September to November.

APPENDIX. CLIMATIC TABLES

Germany: Mean Monthly Temperatures and Range of Temperatures (from E. Alt, *Klimakunde Von Mittel-und Südeuropa* in W. Köppen and R. Geiger, *Handbuch der Klimatologie*, Teil M. Band III).

Province	*Station*	*Ht. in Metres*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*
1. Northwest	Bremen	40	0·9	1·5	3·4	7·8	12·3	15·7
	Münster	60	0·3	1·5	5·7	7·6	12·4	15·6
2. East Baltic	Königsberg	5	−2·9	−2·7	−0·2	5·5	10·7	15·4
3. East Lowland	Berlin	50	−0·4	0·3	2·8	7·7	12·7	16·7
	Magdeburg	58	−0·4	0·8	3·7	8·2	13·5	17·0
	Warsaw	120	−3·4	−2·8	0·5	7·1	12·8	17·3
4. Central Low-Lands	Bayreuth	360	−2·2	−0·9	2·4	7·2	11·6	15·5
Central Up-lands	Freudenstadt	730	−1·9	−1·0	1·7	5·8	10·2	13·9
	Munich	525	−2·1	−0·2	3·2	7·7	12·5	15·9
5. Rhinelands	Freiburg-i-B.	125	0·5	2·1	5·1	9·7	13·6	17·4
6. Alpine	Innsbruck	600	−3·3	−0·6	3·7	8·8	12·9	16·2
	Traunstein	597	−3·7	−1·5	1·8	6·4	11·3	14·7
5. Danubian	Vienna	200	−1·7	0·2	3·9	9·4	14·0	17·7

Station	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Mean*	*Range*
Bremen ..	17·3	16·5	13·6	9·1	4·1	1·7	8·6	16·4
Münster ..	16·8	15·9	13·1	8·7	4·6	1·4	8·4	16·5
Königsberg ..	17·3	16·6	13·1	7·6	1·8	1·9	6·7	20·2
Berlin ..	18·1	17·4	13·9	9·0	3·4	0·4	8·5	18·5
Magdeburg ..	18·2	17·3	14·1	9·1	4·0	1·0	8·9	18·6
Warsaw ..	18·8	17·6	13·4	7·8	1·6	−2·6	7·3	22·2
Bayreuth ..	17·0	16·3	12·7	7·6	2·0	−1·7	7·3	19·2
Freudenstadt	15·5	14·9	11·8	6·9	2·6	−0·8	6·6	17·4
Munich ..	17·7	10·9	13·3	8·1	2·9	−0·7	7·9	19·8
Freiburg-i-B.	19·2	18·6	15·1	10·0	5·4	1·7	10·0	18·9
Innsbruck ..	17·8	16·9	13·9	8·8	2·7	−2·6	7·9	21·1
Traunstein ..	16·4	15·5	12·1	6·9	2·0	−1·8	6·7	20·1
Vienna ..	19·6	18·8	15·2	9·8	3·5	−0·6	9·2	21·3

Germany: Average Monthly Rainfall as Percentage of Total Annual Rainfall determined as an average of a number of stations in each climatic province (from O. Maull, *Deutschland*, p. 28)

Province	No. of Stations	*J.*	*F.*	*M.*	*A.*	*M.*	*J.*	*Jy.*	*A.*	*S.*	*O.*	*N.*	*D.*
1. *Northwest* Dutch-German North Sea Coast ..	35	7	6	7	6	8	9	10	11	10	9	9	8
N.W. Germany (Hanover, Oldenburg, Westphalia, Niederrhein, except coast)	19	7	7	7	7	8	10	11	10	8	8	8	9
2. *East Baltic Lands* (Mecklenburg, Pomerania, E. Prussia)	22	6	5	6	6	8	11	13	12	9	8	8	8
3. *East Lowland* (Brandenburg, Posen, Silesia) ..	23	6	6	6	7	9	12	13	12	8	7	7	7
4. *Central* (Rest of Rhine Province Hessen, Thuringia, Land & Prov. Saxony) ..	69	6	6	7	7	9	11	12	11	7	8	8	8
5. *Rhineland* (Pfalz, Alsace, Würtemberg, Baden, Bavaria) ..	63	6	6	7	7	10	11	11	11	8	8	8	7
6. *Alpine*													
(*a*) N. Tyrol, Voraalberg ..	5	5	4	7	8	9	12	13	12	9	7	7	7
(*b*) Salzburg, Austria, Upper Styria	19	5	5	7	7	10	12	13	13	9	6	7	6
(*c*) S. Tyrol ..	12	4	4	6	9	11	10	9	9	11	12	9	6
(*d*) S.E. Carinthia, Carniola ..	16	6	5	7	7	9	9	9	9	10	11	10	8

Germany: Mean Monthly Rainfall (in millimetres) (from E. Alt, *Klimakunde von Mittel- und Südeuropa*)

Province	*Station*	*J.*	*F.*	*M.*	*A.*	*M.*	*J.*	*Jy.*
1. Northwest	Bremen ..	48	44	49	41	57	65	88
	Münster ..	57	49	60	43	53	70	89
2. East Baltic	Königsberg ..	42	38	37	38	48	62	83
3. East Lowland	Berlin ..	37	35	43	49	52	75	54
	Magdeburg ..	29	31	38	31	45	51	67
	Warsaw ..	33	28	32	41	49	64	77
4. Central Uplands	Bayreuth ..	37	33	39	32	54	63	67
	Freudenstadt	125	126	139	99	105	123	126
	Munich ..	39	34	46	71	91	121	115
5. Rhinelands	Freiburg ..	42	47	57	63	79	103	104
6. Alpine	Innsbruck ..	39	42	49	58	69	101	127
	Traunstein ..	84	78	97	114	143	181	188
7. Danubian	Vienna ..	41	27	48	59	73	79	76

Province	*Station*	*A.*	*S.*	*O.*	*N.*	*D.*	*Total*
1. Northwest	Bremen ..	72	53	60	51	53	693
	Münster ..	77	59	63	59	68	760
2. East Baltic	Königsberg ..	85	76	60	58	56	695
3. East Lowland	Berlin ..	46	44	41	41	43	563
	Magdeburg ..	48	43	42	33	34	499
	Warsaw ..	62	42	31	37	35	541
4. Central Uplands	Bayreuth ..	64	48	42	42	45	575
	Freudenstadt ..	110	102	112	127	157	1,474
	Munich ..	99	94	57	44	45	870
5. Rhinelands	Freiburg ..	96	81	75	58	50	869
6. Alpine	Innsbruck ..	114	87	59	41	52	853
	Traunstein ..	167	150	96	85	96	1,502
7. Danubian	Vienna ..	63	43	54	35	41	651

Germany: Number of Days with Snowfall (from E. Alt, *Klimakunde von Mittel- und Südeuropa*)

Flensburg	28·7	Schneekoppel	29·4
Lauenburg	54·6	Leipzig	32·5
Putbus	39·8	Dresden	32·0
Helgoland	24·8	Erfurt	38·8
Hamburg	36·6	Marburg	35·5
Stettin	34·6	Aachen	28·2
Neu Strelitz	39·2	Bayreuth	47·0
Bremen	28·8	Wurzburg	28·5
Berlin	35·1	Frankfurt	25·5
Hannover	26·6	Trier	23·5
Magdeburg	37·4	Nurnberg	39·4
Munster	28·1	Regensburg	35·2
Grunberg	42·8	Passau	37·0
Klausthal	70·0	Freudenstadt	52·1
Brocken	98·6	Munchen	53·1
Kassel	36·6	Freiburg	24·3
Breslau	48·2	Traunstein	54·3
Ratibor	48·5	Friedrichshafen	27·1
		Zugspitze	181·0

Germany: River Regimes (from O. Maull, *Deutschland*, p. 544)

Drainage Basin	*Rainfall %*		*Flow %*		*Evaporation %*	
	Winter	*Summer*	*Winter*	*Summer*	*Winter*	*Summer*
Memel	37	63	25	9	12	54
Vistula	35	65	17	8	18	57
Oder, Elbe ..	38	62	18	8	20	54
Weser, Ems ..	43	57	24	11	19	46
Rhine	44	56	29	23	15	33
Danube	40	60	24	29	16	31
N. Central Europe	37	63	19	9	18	54
Alpine Rivers ..	42	58	26	26	16	32
Central Europe ..	39	67	22	15	17	46

SOILS

Soil development is determined in large measure by conditions of temperature and moisture, so that soil types show a close relation to climate in their wider distributions. But the detailed characteristics of soils are due to the underlying characteristics of the bed-rock, the drainage conditions, and the minute differences of slope. In consequence, there is a very close relationship between the surface of the land and the soil that develops on it. Since there is great diversity in the detail of the land surfaces in western Europe, and in western Germany in particular, so there are minute variations in the character of the soil and, moreover, in the initial kind of vegetation that it supported, and in the subsequent use to which agricultural man has been able to make of the soil. We shall here confine ourselves to a broad consideration of the character and distribution of soils in central Europe.

We may first notice certain characteristics of the main processes of soil formation and of soil types.

The word *Podsol* is of Russian origin and means ash-coloured. The process involved in the formation of such a soil is one whereby the percolation of water dissolves the soluble constituents near the surface and so plant growth is retarded through the lack of plant constituents. The extent to which the process goes on depends on the moisture and temperature conditions. Calcium carbonate is also dissolved out through the action of carbon dioxide in the water, in which earthworms cannot live, so that the dead plant matter, instead of being made into humus and mixed with the soil by these worms, remains on the surface as a rotting layer of acid humus. Below this layer, the soil, deprived of humus and iron and salts, becomes a greyish clay, while the dissolved constituents collect in the subsoil to form an iron pan, called in German *Ortstein*, that is impenetrable by plant roots. This threefold horizon is characteristic of the podsol soil and this is characteristic of the heaths and moors and forests of northern Germany.

A second large group of soils that covers much of Germany are the *Brown Forest Soils*. These soils have not been leached to nearly the same degree as the podsols and are in consequence much more fertile. Humus and iron remain and give to the soil its dark-brown colour. Such soils are characteristic of areas of deciduous forest vegetation. The forests have generally been cleared and the soils brought under cultivation. Podsolization is a further process in soil formation and some of the brown-forest soils of northern Germany are in process of becoming podsolized.

The third main group of soils are the *Chernozems*. These are fine-grained black soils and are typically developed in the steppes of south

Russia in Europe from whence they extend westwards through the Ukraine to Silesia and the middle Elbe basin. Downward solution takes place in the winter but upward movement through plant growth takes place in the dry, hot summer. The soil is rich in plant foods and calcium carbonate collects as a layer between the soil and the subsoil, while the humus gives the black colour to the soil.[1] The black soils are mainly derived from loessic deposits, but in Germany and in western Europe, such loess materials, that collected under the grassland vegetation that succeeded the withdrawal of the Ice Sheet, have been modified by milder and wetter conditions, so that there has been more leaching and the soils developed from the parent material have a yellow-brown colour. They are known in French as "limons" and are, in effect, "degraded" chernozems. Such soils occur over large areas in northern France, central Belgium, the Cologne Bay, and in many areas in the lowland pockets of central Germany.

Soils derived *in situ* from limestones are called *Rendzinas*. They are thin in depth and dark red or brown or even black in colour. They contain calcium carbonate, and are dry, but if adequately watered are very fertile.

Peat soils are found under waterlogged conditions, when bacteria cannot function because of the absence of oxygen so that plant matter cannot be changed into humus.

The so-called "skeleton" soils are those which are thin and contain rock fragments. Their formation is prevented by the roughness of the relief on very hard rocks. A scree on a steep slope is an extreme case of a skeleton soil.

Soils are classified for west-central Europe as follows in the *Atlas des Deutschen Lebensraumes* on the basis of their genetic pedological characteristics. The main groups are based on the chief factor involved in their formation.

Vegetation

(*a*) Brown and Black Steppe soils (*Chernozems*).
(*b*) Steppe soil degraded through forest growth and surface leaching by water (*Degraded Chernozems*).
(*c*) Brown Forest soils.
(*d*) Leached Brown Forest soils.
(*e*) Wet Forest soil.

Water

(*f*) Partially Bog soils (*Anmoorige Böden*).

[1] Such soils of the sub-humid regions of the earth's surface have been described as pedacals, from the two chemical constituents, calcium and aluminium silicates, that make up their chief constituents, as opposed to the pedalfers of the humid lands in which aluminium and iron oxides are the main chemical constituents.

(*g*) Bog soils (*Moor*).
(*h*) Fen and raised Bog (*Flachmoor* and *Hochmoor*) soils.
(*i*) Wet alder and meadow soils in valleys and depressions (*Auen-*, *Bruch-* and *Wiesenböden*).
(*j*) Salt Marsh soils (*Seemarschböden*).

Parent Rock

(*k*) Red soil on limestone (*terra rossa*).
(*l*) Grey to black soil on limestones (*Rendzina*).
(*m*) Coloured clay and loam soils.

Salt

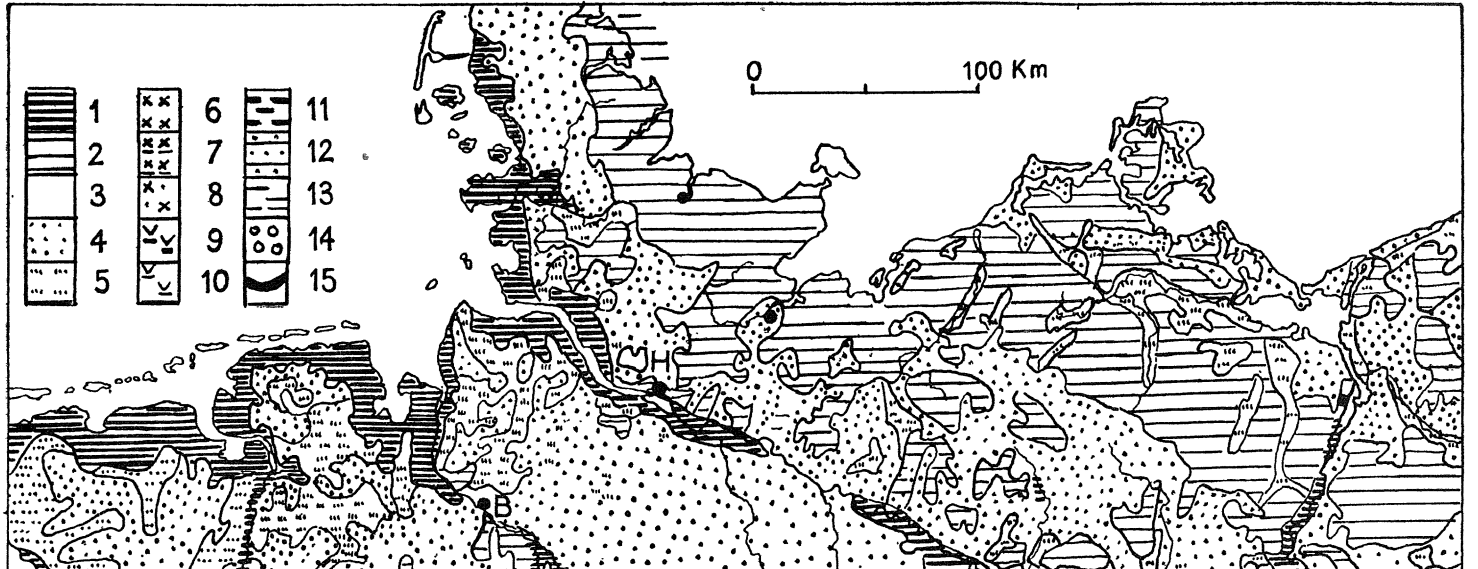
(*n*) Solonez.
(*o*) Salt marsh, etc.

Slope. Immature soils on steep slopes.

We may now turn to the distribution of the main soil types in the west German lands. (Fig. 11.) Podsolized soils are predominant in the northern glaciated lowland, especially in the northwest, west of the Elbe. Here, water has removed the soluble plant foods such as iron and salt compounds, leaving a poverty-stricken grey soil that often rests on an impenetrable layer formed by the downward wash of material at the upper level. This is the iron pan, or *Ortstein* as it is called in German, that prevents both the extension of plant roots and drainage. Peat bog and heath cover large areas. The clays of the coastal marshes are fertile loam and clay soils. On the other hand, on the more recent glacial deposits east of the Elbe leaching has not gone so far and the soils are more productive. They fall into the category of Brown Forest Soils and are particularly well developed on the boulder clays of the Baltic Uplands in Holstein and Mecklenburg. The soils of the sands and gravels that lie in the giant valleys of Brandenburg are podsolized like those west of the Elbe. These are distinct from the alluviums of the river valleys.

There is much more variety of soils in the Central Uplands owing to the greater variety of geology and relief. Podsols occur on sandstones and sands. Brown Forest soils are dominant on the Bavarian Plateau and in the middle Main and Neckar valleys. Along the northern border of the uplands and in scattered pockets in the uplands there are loess deposits, upon which chernozem soils have developed to form the best farm land. Rendzina soils are developed on the limestones, especially those of the Muschelkalk limestones. These are dry clay soils, with fragments of limestone. The areas of rough upland or highland relief lack developed soil profiles and the soils are described as "immature" and as "skeleton" soils. They are only a few inches deep and contain numerous stony fragments of the underlying rock.

What is of more significance to the geographer than the mode of


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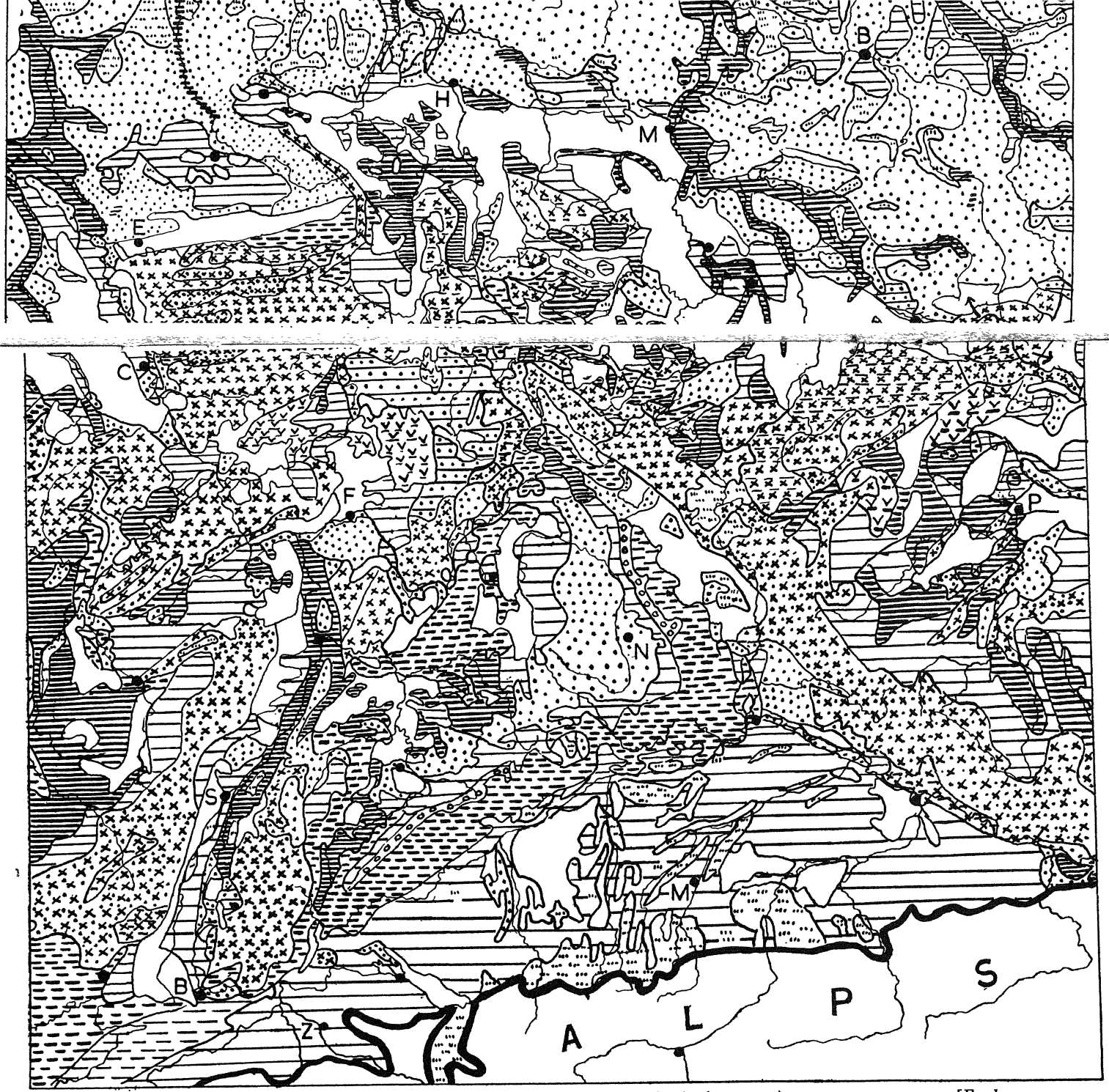


FIG. 11—GERMANY: SOILS (*from A. d. D.L.*) (scale 1 : 4 M.)

[*For key see over*

formation of soils is the character of the soil based on its physical contents. This is the basis of the classification used on Fig. 11, the details of which are as follows:

Clay.
Loam.
Loess-loam (*Staubsand*).
Sand and gravel and dunes.
Bog (*Flachmoor*, *Hochmoor*).
Thin clay, Thin loam, Thin sand } on solid impervious rock (*Gebirgschutt*).
Thin clay, Thin loam } on pervious limestone.
Thin clay, Thin loam } on volcanic rock.
Bare rock (*Felsboden*).

This method of classification of soils is of decisive importance to the geographer. To him what matters most about the land is its degree of relief and the lithological character of its rocks, in so far as they determine permeability (and thus the availability of water), and the character of the surface soil, and the type of vegetation and crops it will support. Detailed maps of this kind are of fundamental importance in assessing the characters of the landscapes of the earth's surface as well as of the types of rural economy and land uses associated with them.[1]

One of the most important elements of the land that affects the mode of human adjustment to it is the bed-rock, since this determines not only the detail of slope, but also the texture of the soil and the availability of water. The geographer needs detailed maps of the rock according to its lithological character and the disposition and depth and permeability of the rock strata, rather than geological maps based on age and fossil content. Fig. 11 attempts to show the general lithology of the west German lands on the same map as the soil types.

NATURAL VEGETATION

At the beginning of the Christian era, before man had begun to clear the forest on a large scale, at least two-thirds of west-central Europe outside the mountains was either forested or marshy. The light, well-drained soils, such as lay on loess, limestones, sands and gravels, attracted human settlement as far back as the Neolithic era, and, by and large, these

[1] See H. Stremme, "Die Böden des Deutschen Reiches und der Freien Stadt Danzig", *Petermanns Mitteilungen*, Ergänzungsheft Nr. 226, 1936, with a soil map on the scale of 1:1,000,000. This map was enlarged to a scale of 1:250,000 and was the basis of the detailed studies of terrain in western Germany (Ch. 16).

were the initial areas of German settlement from 500 B.C. to A.D. 500.

Two points should be emphasized at the outset in dealing with "natural" vegetation. In this treatment, we are concerned with the "natural" vegetation in so far as its character can be reconstructed before man's great onslaught on it towards the end of the first millennium after the birth of Christ.[1] This is the period that is known to German scholars as the *Rodungszeit*. Since this time, man has cleared the forest or modified its character, drained the marsh, and used and changed the open woodlands and heaths of north Germany, so that the natural conditions of growth have been disturbed and the floral character changed. Woods, too, have been cleared. It is not suggested, however, that man did not affect the natural vegetation before this time; he certainly did, though it is not clear how and over what areas. It is claimed that from the standpoint of the land of today the main changes were wrought with the beginning of close and permanent agricultural settlement in western Europe.

Not only is man himself, however, an active agent of change. Plants migrate and associate with plants that like a similar habitat and they compete with each other in the formation of plant associations. They change also in accordance with changes of climate, and climatic pulsations since the Ice Age have been accompanied by changes in the distribution of individual species and in the character of the flora and the plant associations in the same area. We cannot pursue all these aspects of the problems of plant geography here, although only through this historical interpretation can the character of the natural vegetation and the changes wrought by human interference be properly understood.

The changing character of the surface vegetation is the result of both climatic changes and human interference. It is thus difficult in any area to decide just what "natural" vegetation means. Primitive man in the Neolithic Age already burned and felled trees so that woodland disappeared and its place was taken by heath. So-called "forest-free" lands at the dawn of our era were undoubtedly wooded in prehistoric times, and, indeed, it would appear that prehistoric pastoral communities

[1] This is the definition used by K. Hueck, the outstanding scholar in this field, in his work on plant geography in Germany and in his map of *Natürliche Vegetation* in the *Atlas des Deutschen Lebensraumes*.

Fig. 11. GERMANY: SOILS

1. Clay
2. Loam
3. Loess-loam
4. Sand and gravel
5. Bog soils (*moor*)
6. Thin clay on impervious rock
7. Thin loam on impervious rock
8. Thin sand on impervious rock
9. Thin clay on volcanic rock
10. Thin loam on volcanic rock
11. Loams on limestone rock
12. Mixed sands and loams
13. Limestone rock surface with no soil cover
14. Mainly limestone rock surface with no soil cover (*screes*)
15. Northern limit of the Alps

sought open, wooded land to pasture their cattle and pigs. But the great era of forest clearance commenced between A.D. 500 and A.D. 800.

The onset of the Ice Age resulted in the development of a tundra flora throughout the ice-free areas of central Europe. With the withdrawal of the ice, there came a cold, dry (Boreal) period, that was followed by a milder and moister (Atlantic) period, when oceanic conditions penetrated by the extension of the sea. The warmth-loving plants of the late Tertiary era were swept south by the advance of the Ice Sheet and some of this flora returned when the ice withdrew, while the Arctic plants retreated northwards or were relegated to, and preserved to this day in, the high mountains. During the cold, dry (continental) period that succeeded the end of the Ice Age (Boreal), a xerophytic steppe-heath flora penetrated westwards. With the subsequent onset of milder and moister period (oceanic) conditions, this steppe flora was gradually invaded by tree growth, and the former is preserved today on the dry and warm soils, on loess, limestone and gravel deposits. It was mainly on the well-drained loessic soils that Neolithic man settled. This mild and moist phase continues to our day.

The post-glacial periods, more especially in central Europe, began with a cold, dry, continental period with a tundra vegetation, at a time when the ice front had retreated to southern Sweden and southern Finland. As it became more mild a moist birch-tundra vegetation developed, then park steppe with the birch and the pine (*Pinus sylvestris*; German, *Kiefer*). This was the Boreal Period. More oceanic conditions, warm and moist, reached their optimum in the early Neolithic period of human settlement, when open oak woodland, mixed with elm, lime and oak, became very characteristic. This is the so-called Atlantic Period. Then came a long period in which temperature and precipitation again decreased, during the Neolithic, Bronze and Iron Ages, reaching the climatic conditions of the historical period. In this period beech and spruce (German, *Fichte*) spread as closed forest and open woodland, and even invaded parts of the steppe-heath areas that were thus reduced in extent. This was the condition at the beginning of the great age of forest clearance in the middle of the first millennium of this era. (See p. 80.)

The spread of Neolithic man took place in the Atlantic period during the optimum phase of forest growth, when the dry loess soils were at any rate partly wooded. The late Mesolithic food gatherers, fishers and hunters avoided the loess. Tardenoisian man was especially associated with sandstone and sandy soils that would be less wooded. Thus, concludes Alice Garnett, "General considerations seem therefore to suggest that the direction of geographical emphasis may have been fundamentally wrong in assuming that Neolithic man, unable to modify a forest environment to suit his needs, made use of more open country only".

Heath and steppe flora often exist probably as a result of man's early occupation of the land. And man cleared trees by burning and felling at an early date. This has been proved in Denmark for the Neolithic period when forest cutting and burning took place and trees were replaced by heath. The so-called "natural" heaths of central Jutland were originally areas of open oak forest cleared first by Neolithic man and at an increasing rate during the Iron Age. But that Neolithic man did show a preference for the loessic soils is undisputed and there are several clear reasons why this preference was shown, without necessarily claiming that these areas were all naturally free of trees. These soils were fertile, they were light and loamy and could easily be worked with the primitive wooden plough, and they are well drained and formed a suitable material for the cutting of pit-dwellings, and the even surfaces of loess-covered land could easily be cleared of trees by cutting or burning.

"From an original surmise that Neolithic man followed the distribution of natural forest clearings, a theory was developed that areas of presumed natural steppe-heath evolved during the phase of deteriorating, drier climate known as Sub-Boreal. Later researches in some cases dispute the existence of a pronounced or prolonged dry Sub-Boreal phase, and in any case, the advance of Danubian man in Europe is placed prior, and therefore unrelated to, such a climatic phase. Finally, quite recent research increasingly points to the somewhat startling possibility that the changes in the characteristic vegetation from forest to steppe-heath may be due to biotic rather than to climatic developments associated with processes of forest destruction carried out by primitive man himself." This is a recent statement by Miss Garnett that will be of service to English readers, as indicating, indeed, not a new interpretation, but a change in viewpoint from that of Robert Gradmann, the main exponent of the steppe-heath theory. This modified position, based largely on pollen-grain analysis, is now generally accepted by students of early man and geographers (see Chapter 6).

The extent of the woodlands and of open land at the eve of the *Rodungszeit*, say about A.D. 500, has been mapped on the basis of soils, flora, and place names and medieval records. The results are shown on Fig. 27. The German tribes occupied the open steppe and parkland areas that are left unshaded on this map. Some of these were "natural" forest-free clearings, others were open parkland in which the trees had been cleared. Probably 70 to 75 per cent of all Germany was forested at this time as compared with 27 per cent of today. This figure may be compared with 5 per cent in Great Britain today.

The question of the origin of heathland and coppice (*Niederwald*) is disputed. Heath is a characteristic oceanic formation in northwest Germany, where it includes heather and juniper. But it is probably a degenerate

formation, due to the destruction by man of initial open oak-birch woodlands, for these are among the earliest areas of prehistoric settlement. Great areas have been planted with conifers in more recent years. Forests have not only been cut down. They have also been used by man, and their character has thereby been changed. Woodland, as is still the practice in parts of the Rhine Massif, was cut down or burned to make way for temporary cultivation (*Hackwaldwirtschaft*) until recent times. The coppice (*Niederwald*) that grew in such areas was also exploited for oak bark for tannin. Such cutting or burning of the woodland is variously called *Hauberg-* or *Reutbergwirtschaft.*

Today woodland is still dominant in areas that are unsuitable for agriculture. (Fig. 31.) It covers areas of dissected relief, such as the Thüringerwald, Harz, Sudetes and Alps; pervious rocks in mountainous areas which have not been cleared for cultivation, especially notable in this connection being the Triassic sandstone plateaus such as the Spessart and Oldenwald, Pfälzerwald, Black Forest, the Elbe sandstone uplands; and the impervious soils on lowlands, or on the *Sandr* and valley sands of northern Germany and the Upper Rhine Plain. On the other hand, smooth surfaces of intermediate altitude have been greatly deforested as in the Eifel, Westerwald, Oberpfalz, southern Bohemia, and the Bavarian Plateau. Heavier clay soils were also cleared and brought under cultivation with the use of the plough as in the Keuper and Lias clays of Swabia and Franconia.

The natural vegetation as shown on Fig. 12 shows the following formations.[1] The term is used to designate the dominant types of vegetation that occur, or that would occur, had they not been affected by human interference.

1. *Beech Forest.* This grows best on well-drained moist soils with neither severe winters nor very hot summers and does not grow well with a short cool growing season. It is the dominant deciduous tree in central Europe and spreads up the hills to altitudes of 2,000 ft. in the Harz and 4,000 ft. in the Bavarian Alps where it is replaced by spruce. Beech forest on fairly acid soils occurs in the Baltic Uplands and western Germany. These two great areas are separated by the Pine and Oak-Pine areas that stretch from the east westwards into the north German plain and by the Oak-Birch woods in the west. Beech woods with a greater variety of sub-dominant species and a rich ground flora occur on better-drained soils, as in the boulder clays on the Baltic Uplands or the limestones of southern Germany. They occur at lower altitudes on the periphery of the Alps.

2. *Oak-Hornbeam Woods.* These occur on brown forest soils and on

[1] In Hueck's work the identical vegetation map of the *Atlas des Deutschen Lebensraumes*, on a scale of 1:3,000,000, is reproduced for parts of Germany on a scale of 1:300,000.

soils with a shallow water-table in northwestern Germany. They include limes, elms, maple and beech. The shrub layer includes hazel, hawthorn, spindle, elder, bracken and bramble. More open woodland of this type occurs on the driest loess and limestone soils and here there occur plants with close affinities to the *steppe-heath* flora.

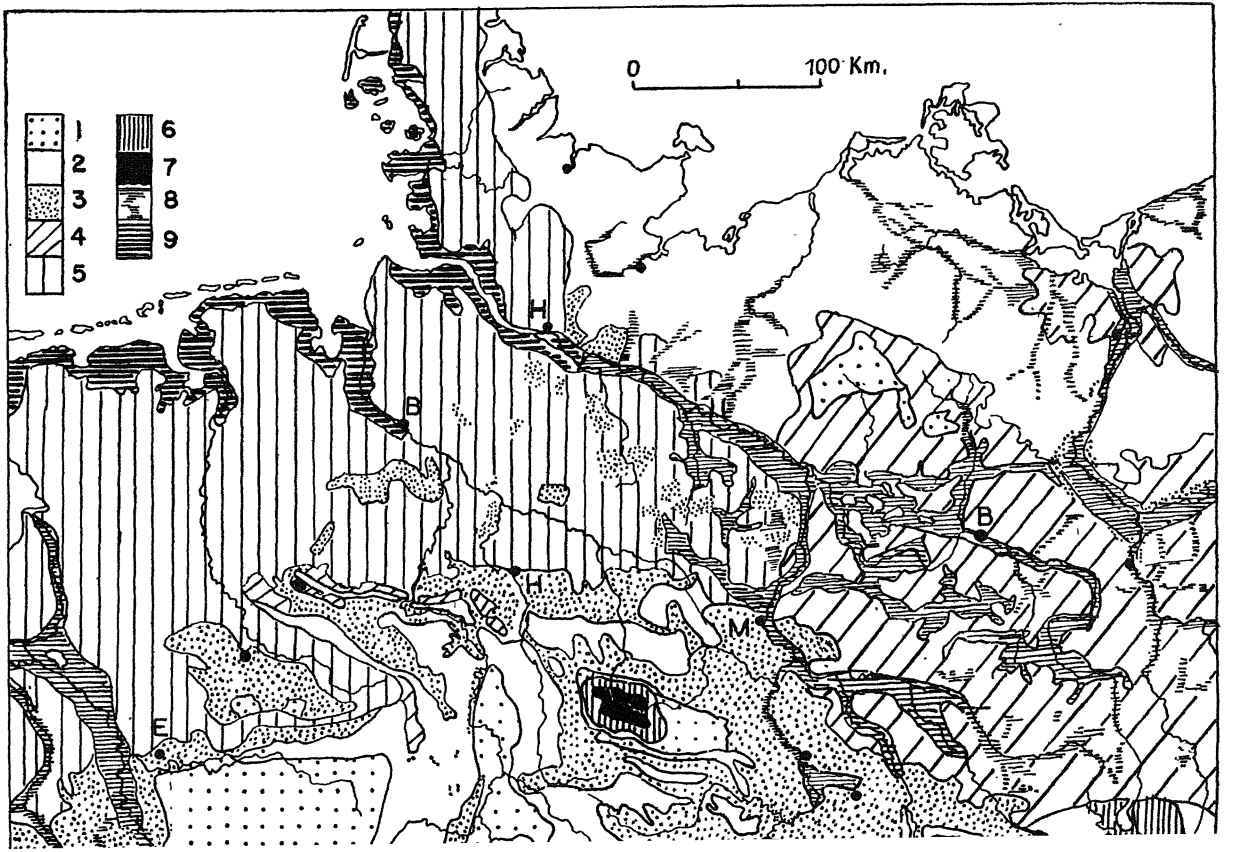
3. *Oak-Birch Woods.* These are found in northwest Germany on light, sandy, acid soils. This woodland also formerly covered the Lüneburg Heath and it is the chief type in the Münster and Cologne Bays as well as in much of Holland and Belgium.

4. *Scots Pine Forest* (*Pinus sylvestris*; German, *Kiefer*). This forest occupies nearly a half of the forested area of Germany. It is essentially a lowland tree and is dominant in the northeastern lowland. It reaches altitudes of 4,000 ft. in the Central Uplands. It is the dominant tree on lighter and sandier soils, its place being taken by spruce, oak and hornbeam on the moister soils. The tree, of course, is indigenous and with the beech (that is dominant in the west) the two are the chief German trees. The eastern area reaches west to the Elbe. Smaller islands are found in Nuremberg and in the Upper Palatinate.

5. *Spruce Forest* (*Picea abies*; German, *Fichte*). This is especially characteristic of the highlands, to which it is native, whereas its main domain is in the north and east of Europe. It lies above the beech zone and reaches up to the tree line. The upper limits increase southwards so that in East Prussia it occurs down to sea-level. In the central German uplands it begins above the beech at 2,000 ft. in the Harz and 4,000 ft. in the Bavarian Alps, and reaches in the same places 3,000 and 5,000 ft. respectively. This is the main tree used in plantations and grows to a great size and yields excellent timber. Its best zone is between 1,500 and 4,000 ft. There is often a narrow zone between the spruce and beech in which occurs the silver fir (*Abies alba*; German, *Tanne*,), that is native to the mountains of southern Germany. The fir likes moister and warmer conditions than spruce and occurs below it, intermingled with beeches, up to altitudes of 2,600 ft. in central Germany and 5,000 ft. in the Bavarian Alps.

6. *Heath.* This has developed from the degeneration of an initial open woodland of oak and birch through human interference and it is characteristic of the acid, sandy, but drier soils of northwestern Germany. *Calluna vulgaris* dominates in drier areas and *Erica tetralix* in wetter areas.

7. *Moor.* Bog, to use the English equivalent, is formed when the water-table almost reaches the surface. It has a base of peat upon which lies the silt in which grow reeds and grasses and sedges that have thick interlocking roots in the peat. Soils are acidic. The sedges often occur in tussocks and in these drier places alder woods may grow (German,



1. Beech woods, acid soils, small variety of ground flora
2. Beech wood, less acid soils, big variety of ground flora
3. (*a*) Oak-hornbeam woods on brown forest soils with water table near surface. Includes ash, lime, elm, etc. and a shrub layer. (*b*) Oak-hornbeams on drier and warmer soils (especially loessic soils)
4. Pine forest with juniper, heather and moss ground flora

5. Natura heath and bogs with scattered oak and birch woods
6. Spruce-fir-beech forest
7. High forest altitudes (spruce, larch, mountain pine and alpine flora)
8. Wet alder woods (*Auenwald*) and bog and fen (*Moor*) on river plains
9. Halophile coastal vegetation on *Marschen*

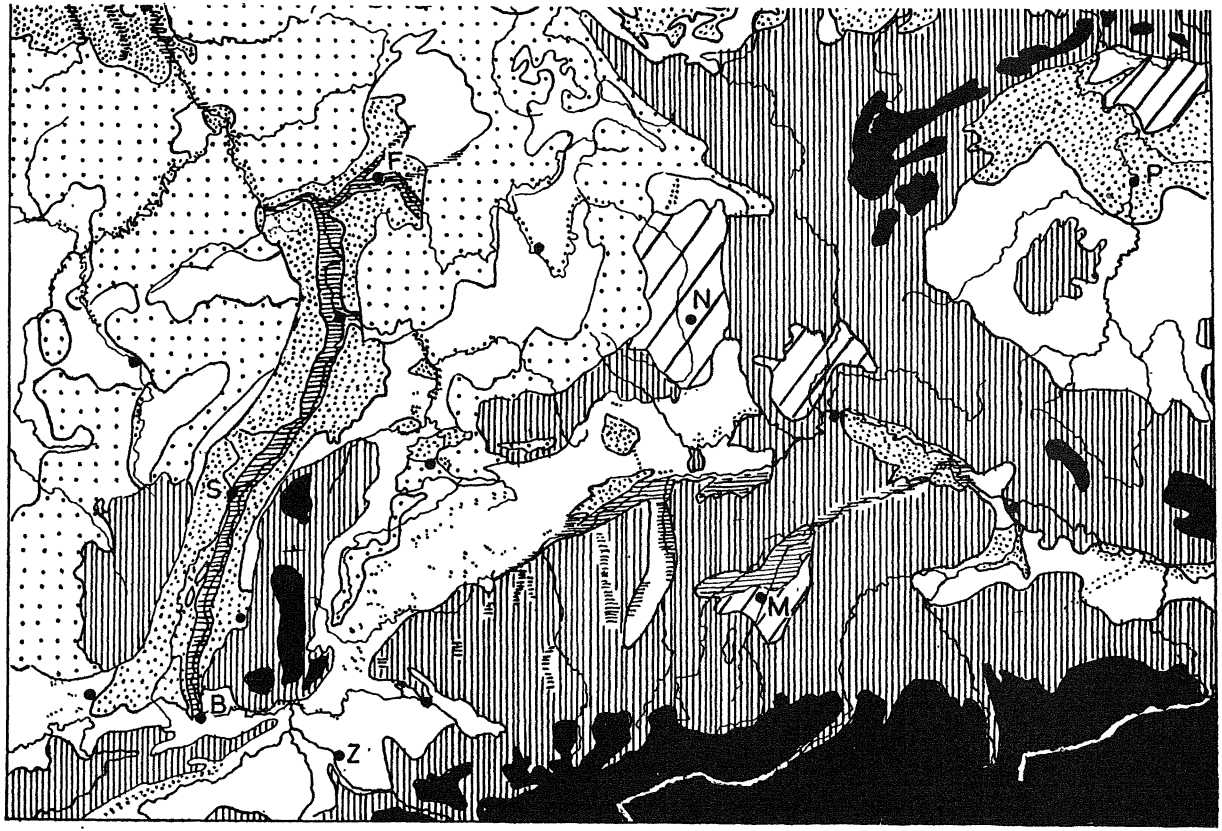


FIG. 12—GERMANY: NATURAL VEGETATION (*from A. d. D.L.*) (scale, 1 : 4 m.)

Erlensumpfmoor or *Bruchwald*). This type of vegetation is called *Flachmoor* or fen. In many areas the peat is highly acid and on it grow sphagnum mosses, cotton grasses and shrubs such as cranberry and bilberry. This vegetation often occurs in clumps with ponds and sedge-moss in the

Vegetation of Central Europe in Post-glacial Times (from Schrepfer, *Landeskunde von Deutschland, Der Nordwesten*, p. 51)

Time Scale	*Vegetation Period*	*Vegetation Form*	*Climate*	*Culture Period*
A.D. 1,000	Beech-Fir	Beginning of the Rodungszeit		Historical
1,000 B.C.		Primitive forest except settled areas	Present climate	Iron
2,000 B.C.	Beech-Spruce	Beginning of heath formation by human action	Temperature and humidity decreasing	Bronze
3,000 B.C.				Full Neolithic
4,000 B.C.	Mixed Oak Forest	Open woods and wet alder woods Raised bog	Post-glacial optimum Oceanic, Warm, moist	Early Neolithic
5,000 B.C.	Hazel-Pine	Parksteppe	Temperature and humidity increasing	Epipaleolithic
	Birch-Pine	Treesteppe		
	Birch	Birch tundra		Magdalenian
10,000 B.C.	Dryas	Dwarf scrub Tundra	Continental Cold, dry	

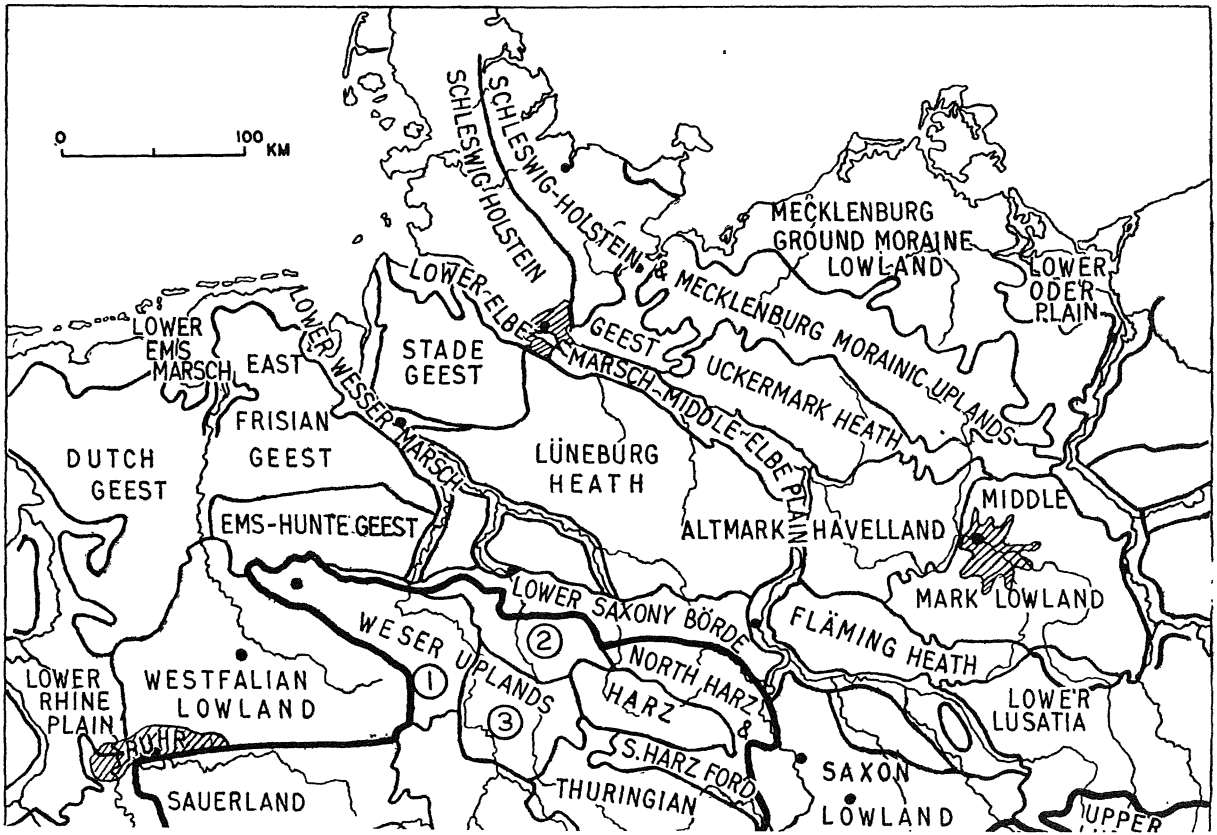
hollows. Heather, pines and birches also occur in these formations, though the highest points are treeless. These slightly raised areas rise above the water-table and are supplied only by rain-water and are thus very deficient in plant foods. They form "raised bog" or *Hoch-*

moor. They are soft peat bogs with sedges and mosses, and a further growth of heather, cotton-grass and cranberry on raised hummocks.

8. *Marshes and Dunes*. The plant community of riverine marshes has its climax vegetation community in the alder woods with tall willows and poplars (*Auenwald*), and even oak and hornbeam, but through human use on river floors these are normally damp meadows. This is the natural and cultivated vegetation that is characteristic of the wet, flat, marshy valley floors in Germany. It is described for the lower Rhineland on a later page. Grasses of various kinds are the only plants of the dunes. Salt marshes occur on the coasts of Germany where there is a big exposed foreshore of tidal silts. There is here a succession of vegetation as the silts are gradually built up above tidal level. This begins with the flats uncovered during spring tides only, and its marine grasses gradually raise the level to form marsh samphire (*Salicornia herbecea*); these are the so-called *Watten* or Saliconica marshes. These may then be protected by wickerwork fences built on sunken piles, behind which the silt surface is built up above *ordinary* tide level, so that it acquires a grass turf. This is only covered by spring tides, and fresh water is able to drain it of sea salt, and its grasses are then suited to grazing. Then such flats are protected by summer dikes from all except high winter tides. These *polders* are further divided, so that the inner marshes are protected by all-weather dikes, and are entirely free from flood.

THE NATURAL REGIONS OF WESTERN GERMANY

We have now examined in turn the general features of the surface relief, the soils, the climates and the vegetation of the west German lands. We may pause to study the maps on the scale of 1 : 4,000,000 on which these features are portrayed in some detail. Comparison of these maps (by using a trace of Fig. 13) will reveal the frequent coincidence of these physical conditions in such a way that areas may be recognized in which a given set of physical conditions occur and are, in fact, causally interrelated. Such a unit area is a natural region, within which, although there is a considerable diversity of local terrains, the same overall basic conditions prevail. The detailed patterns and characteristics of the smaller component unit areas will be discussed later, as will also the method whereby the character and extent of the larger natural regions may be more accurately determined. Suffice it here to state that comparison of the several maps will indicate major natural or physical unit areas into which western Germany may be divided and which serve as a framework for the study and interpretation of human occupance. These are unit areas that have no political significance and often do not have



Heavy lines show the five major divisions — Northern Lowland, Central Uplands, Southern Scarplands and basins, Bavarian Plateau, Alps. The finer lines and names indicate the physical provinces.

Chief cities (over 250,000 people) are shown by block circles and the three principal agglomerations are shaded. Note that the Weser Uplands include:

1. The Westphalian Uplands
2. The Eastphalian Uplands
3. The Leine Uplands

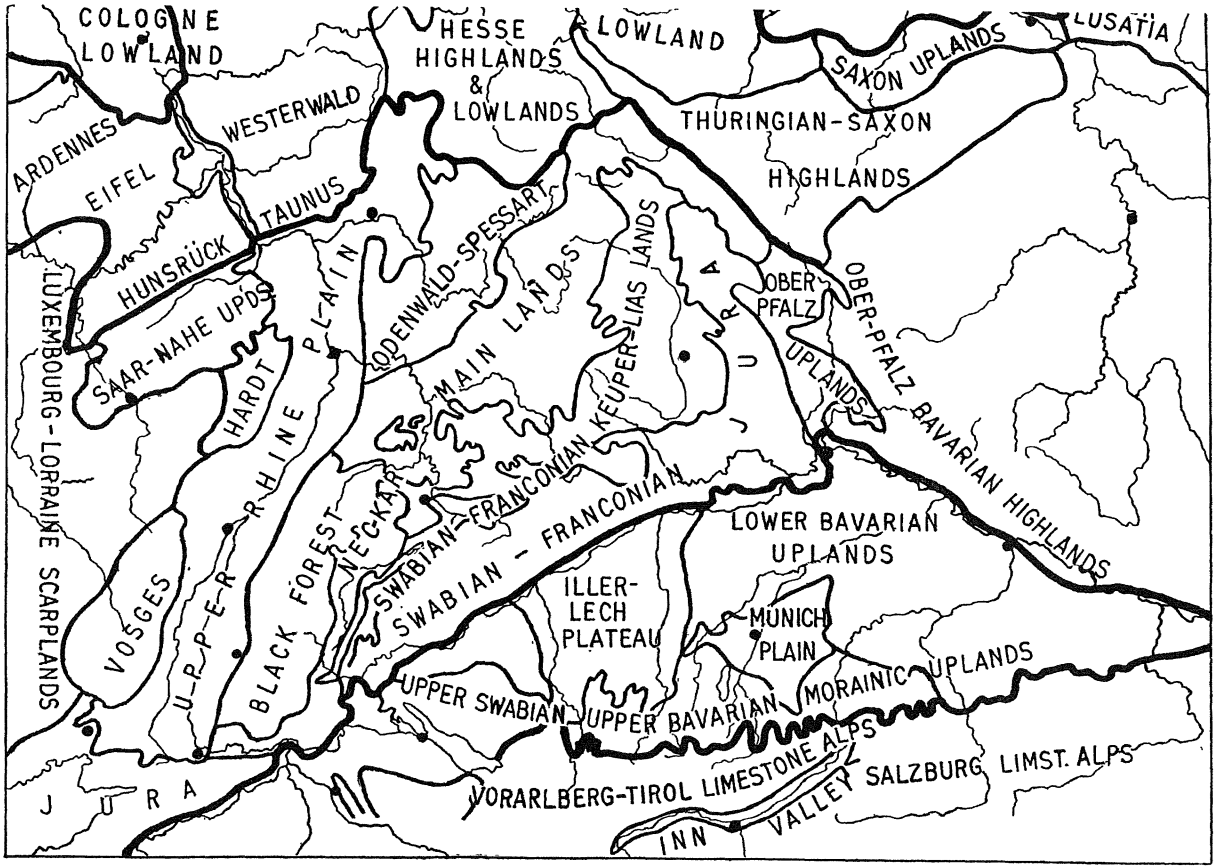


FIG. 13—GERMANY: NATURAL REGIONS (*by the author*) (scale, 1 : 4$\frac{1}{2}$m.)

any distinctive popular name—though, fortunately, in some cases this is so—and consequently names must be coined or adapted. In order to avoid confusion of terminology, we have adopted the names recently suggested in German studies. The map and the regional names are shown in Fig. 13. The names are listed below. The student is advised to pay particular attention to these first overall maps and to the extent and names of the natural regions before proceeding with the book.

This work and the scheme of landscape areas on which it is based have been developed during the last ten years and it is only recently that we have become acquainted with the work of the *Amt für Landeskunde* in Germany, which is carrying out a similar detailed survey of the landscapes of Germany based on the standard 1:200,000 map. This work has been summarized by E. Otremba in the new periodical *Erdkunde*. Otremba also presents a generalized map on the same scale of 1:3,000,000 as the series presented here and as the series in the *Atlas des Deutschen Lebensraumes*. There is a remarkable agreement between our generalized map and that of Otremba. In order to ensure as large a common measure of agreement as possible we have used for almost all our divisions the same names as are suggested by Otremba. These we shall use throughout the book in reference to the natural regions.

The Natural Regions of Germany

The Northern Lowland

West

Stade Geest.
Lüneburg Heath.
Altmark.
East Frisian Geest.
Ems-Hunte Geest.
Dutch Geest.
Lower Weser Marsch.
Lower Ems Marsch.
Lower Rhine Plain.
Westphalian Lowland (*Bucht*).
Cologne Lowland (*Bucht*).
Lower Saxony *Börde*.

East

Mecklenburg Morainic Lowland.
Lower Oder Plain.
Schleswig-Holstein Morainic Upland.
Mecklenburg Lake Upland.
Schleswig-Holstein Geest.
Uckermark Heath.
Middle Elbe Plain.
Havelland.
Middle Mark Lowland (*Platte*).
Flaming Heath.
Lower Lusatian Heath.
Saxon Lowland (*Bucht*).
North Harz Lowland (Foreland).
South Harz Lowland (Foreland).

Central Uplands

North

Rhine Massif (or Plateau):

Sauerland .
Westerwald.
Ardennes.
Eifel.
Hunsrück.
Taunus.
Moselle Valley.
Lahn Valley.

Hesse Highlands and Lowlands.
Weser Uplands { 1. Westphalian Uplands. 2. Eastphalian Uplands. 3. Leine Uplands.
Harz Highland.
Thuringian Lowland.
Thuringian-Saxon Highlands.
Upper Lusatian Uplands.
Saxon Uplands (*Bergland*).

South

Luxembourg-Lorraine Scarps and Vales.
Saar-Nahe Uplands (*Pfälzer Bergland*).
Vosges.
Haardt (*Pfälzerwald*).
Upper Rhine Plain.
Odenwald-Spessart-Rhön.
Black Forest.
Neckar-Main Lands (Limestone and Loess Gaüe) { 1. Swabian Gaüe. 2. Kraichgau. 3. Franconian Gaüe. 4. Upper Werra Lowland.
Swabian-Franconian Keuper-Lias Lands.
Scarped Hills (*Berge* and *Filder*).
Swabian-Franconian Jura. Limestone Plateaus with deeply dissected Scarp Zone.
Oberpfalz Lowland (Naab Lowland).
Bohemian Forest (*Oberpfalz* -and *Böyrisches Wald*).

Bavarian Plateau

Upper Swabian-Upper Bavarian Morainic Uplands.
Iller-Lech Plateau (*Platte*).
Lower Bavarian Uplands.
Vorarlberg-Tirol and Salzburg Limestone Alps.
Munich Plain.
Inn Valley.

Part II

THE PEOPLES

The German character lacks the sharp outlines and the distinct form we recognize in the French and British character. In addition to this, we have continually to bear in mind Germany's peculiar character as a "nation of nations", the differences of racial character being so many that we find difficulty in recognizing any national character common to all the German territories.—Röpke, 1946.

CHAPTER 4

THE GROWTH AND SPREAD OF THE GERMAN PEOPLES

THE PHASES OF SETTLEMENT

THE SETTLEMENT of the German-speaking tribes after the period of the Folk Migrations marked the effective beginnings of permanent settlement of the German-speaking lands. During the last centuries before Christ there emerged in southern Scandinavia and along the southern shores of the Baltic, east of the lower Elbe, a people of a distinct racial type, with a distinct kind of Indo-European language. From this centre there migrated two main groups, the East Germans and the West Germans. The former engaged in a series of spectacular raids throughout western Europe. The West Germans moved more slowly and less spectacularly in families and tribes. Through the slow pressure of other Germanic and Slav tribes behind them, they worked their way westwards to the Elbe basin, and thence to the Roman frontier on the Rhine and the Danube. This period extended from about 500 B.C. to 500 A.D.

In the fifth century A.D. occurred the great incursions of the Germanic tribes into the lands of the Roman Empire west of the Rhine and south of the Danube. The Franks and the Alemanni, after long contact with Roman civilization in their homelands just outside its frontiers, were now pushed from behind and spread into the Rhinelands, so that the present western frontier of German dialectic speech was virtually fixed by the tenth century. The Franks gained temporarily the overlordship of northern Gaul as far as the Somme, the Aisne and the Argonne uplands, and though this Frankish conquest was of short duration, it affected the development and character of institutions in these lands. Pressure from the east still came from the Germanic tribes—the Saxons, the Bavarians, and the Thuringians—and, beyond them, the Slavs. But the tide was stemmed by the frontier defences along the Elbe, Saale, Naab and Danube rivers, that were built by Charles the Great in the ninth century. This frontier in the north remained the effective ethnic and cultural divide between the Germans and the Slavs until about 1200, but to the south of the Danube the Enns river was crossed in the eleventh century, and the limits of the Reich and of German settlement in the eastern Alps were reached in the peripheral lowlands by 1200.

Three divides thus emerged in the formative period of the German peoples, viz. the linguistic divide in the west between French and Ger-

1. Forest-free areas
2. Southern limit of Marsh Moor and Heath
3. } Boundaries of
4. } Duchies and Marches
5. Boundaries of the Reich in the 10th century

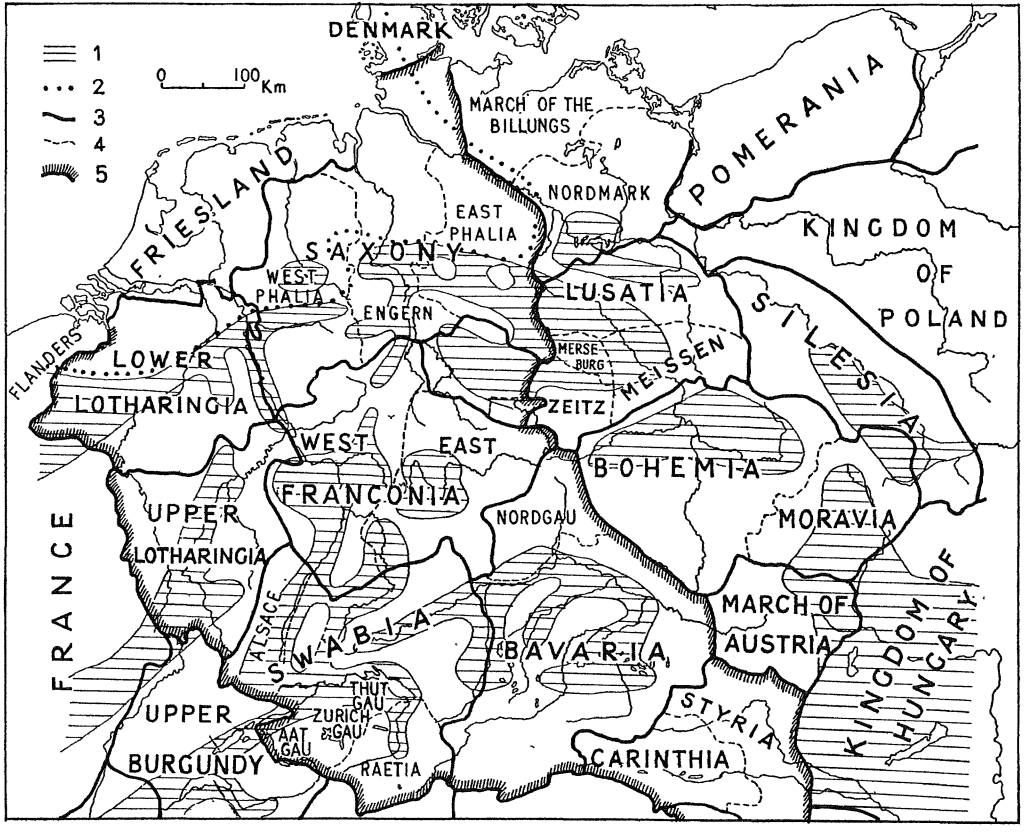


FIG. 14—CENTRAL EUROPE: TRIBAL DUCHIES AND MARCHES, 950—1250 A.D. (scale, 1 : 10 m.)

man, the strategic divide of the Rhine, and the cultural divide of the Elbe-Saale between German and Slav. These lines recur again and again in the changing geographic kaleidoscope of human relations in the history of central Europe.

Areas of Tribal Settlement. The German hearthlands is an appropriate term for the first areas of settlement of the German tribes on land which was relatively free of forest with light, well-drained soils, amenable to plough cultivation. These forest-free lands lay in the loess and limestone areas, on the fertile and drier sand and gravel patches in the northern heathlands, and on gravel terraces in the valleys (Fig. 14).

There is abundant archæological evidence to prove that these areas had been occupied continuously by man from Neolithic times onward. Here the Germanic tribes gradually settled during the period 500 B.C. to A.D. 500 and federated into groups of "peoples" called *Volkstämme.* They settled in scattered islands, separated by forest and marsh, each of which was a political unit known as a *Gau.* These were grouped into large territories, that became the tribal dukedoms, each of which in turn was bounded by a wide zone of uninhabited forest land, called the *Mark,* which often bears to this day the name of one of the tribes it separated, e.g. Frankenwald, Thüringerwald and Böhmerwald. The areas of settlement in the tenth century of the tribal groups and the extent of the dukedoms are shown in Fig. 54, pp. 324, 325.

The Salian Franks had already reached the Meuse in the third century A.D., but in the period A.D. 350–450 they were pushed westwards by the Saxons. The former settled in the lowland, later known as Flanders, between the sea and the woodlands of the *Sylva carbonaria,* south of the Scheldt, and west to the hills of Artois. The Riparian Franks (including the Hessians) were located on either side of the Rhine south as far as the northern end of the upper Rhine plain. The Franks also extended their settlement during the Merovingian and Carolingian periods up the Main river to the Thuringian highland and southwards to the lower Neckar lands.

The areas of Frankish settlement thus formed a wedge between the Saxons to the north and the Alemanni and Bavarians to the south. The Alemanni were settled south of the Franks in the upper Rhine plain, the upper Neckar basin, and around Lake Constance. The Bavarians settled between the Lech and the Enns rivers in the Bavarian Plateau. The Saxons occupied the northern Loess Belt and fertile patches in the northern heathlands between the Ems and Elbe rivers and also spread into the uplands immediately to the south. Their chief strongholds were in the Weser uplands between the Rhine and the Weser, where they long maintained a stubborn resistance to the Frankish conquerors. The Thuringians settled in the loess lowland of Thuringia. The Frisians

made their homeland, as far back as the fifth century B.C., in the marshlands and islands of the northern coast, from the north of Holland to the west of Schleswig-Holstein and Denmark. They placed their isolated settlements on artificial mounds or *terps* that were raised slightly above the level of the marshes and the tides. For centuries they were seafarers, conveying pilgrims and missionaries between the Celtic lands of Britain and central Germany, though their power waned with their defeat by Charlemagne in the eighth century.

During the early Middle Ages from about A.D. 500 to 1000 the front of German settlement gradually expanded eastwards against the Slavs to the Elbe-Saale rivers and to the Bohemian and Bavarian Forest highlands. The Frankish Empire had its base in the Rhinelands, and, long associated with Roman civilization, it absorbed much of its culture. From the Rhineland base, settlement and Christian culture were carried eastwards by the Franks, a mission that was later continued by the Saxons in the northeast and by the Bavarians in the southeast. The Franks conquered the Alemanni in the early sixth century, and thus extended their domain to include the whole of the Rhinelands, where they established their capital at Frankfurt. By the eighth century the Frankish Emperors—the Merovingians and the Carolingians—had conquered the other German tribes—last of all, the Saxons—and the Empire of Charlemagne united all the German tribes. The Franks then drove a wedge of settlement eastwards, between the Saxons to the north and the Alemanni and Bavarians to the south, into the loess lands of the middle Main basin, up the Wetterau into Hesse, and eastwards into Thuringia. Already in the tenth and eleventh centuries the Saxons had shifted their chief seats of settlement into the loess zone on the northern border of the Harz mountains, and they gradually settled in these lands eastwards as far as the Elbe. The Bavarians, too, after the defeat of the Magyars in 955, began to spread into the *Ostmark*, which had been established by Charlemagne in 803.

The Age of Forest Clearance. The Franks commenced the clearance of forest, but this process did not really set in on a big scale until after about A.D. 800, when the German peoples launched a vast attack upon forest, marsh and heath, which lasted for four centuries, until about A.D. 1350. This is the era known as the Age of Forest Clearance—the *Rodungszeit.* In the uplands, forest clearance extended up to some 2,000 ft., the upper limit of successful rye cultivation. Mining drew settlers far above the limits of farming into the uplands in the west and, in the later Middle Ages, into the Bohemian uplands and the northern Carpathians.

The town, too, appears in these lands in the early Middle Ages. The Church, the secular administration, and the military authorities, needed

fixed points of settlement in the open countryside. Here grew the first towns, and by the middle of the twelfth century the medieval conception of a town (*civitas*) as a self-governing community had developed, and numerous market settlements and towns were founded. In 1200 there were about three hundred towns in the west German lands. During the ensuing two centuries virtually all the towns came into existence, a grand total in the west German lands of nearly two thousand, founded to serve as seats of defence, administration, industry and trade for their surrounding areas.

Colonization of the Trans-Elbian Lands. The eastern limit of the compact area of German speech was fixed by the end of the Middle Ages by the colonization of German settlers from the west, and by the conquest and absorption of the native Slav peoples. In the eleventh century, the border provinces or marchlands stretched east of the German dukedoms in a belt from the Baltic Sea to the head of the Adriatic. They included the marches in the Northern Lowland between the foothills of the Elbe-Saale and the Oder and the marches south of Bohemia that covered the eastern foothills of the eastern Alps. In the southeast of the Reich, after the defeat of the Magyars in 955, the Bavarians extended from their hearthland in the Bavarian Plateau throughout the marches of the eastern Alps, and reached the limits of the Reich before the trans-Elbian movement had commenced.

To the north the Elbe-Saale frontier remained the effective eastern frontier of German settlement until the latter half of the twelfth century. Then there commenced that great eastward movement of conquest, colonization, and Christianization which, under the ægis of bishop, monk, noble, and merchant, continued steadily for two hundred years. During this period there was added to the lands of German speech an area equal to that of the motherland in the west.

The first lands to be affected lay immediately east of the Elbe-Saale frontier. They included Mecklenburg, Holstein, the Altmark and Mittelmark of Brandenburg, and the middle Elbe Basin. The Slavs in these lands—Wends in the north and Sorbs in the south—were subjugated and converted to Christianity. After 1200, villages and towns were founded by German immigrants. A second zone of settlement farther eastwards included Pomerania, the Neumark, Silesia, and the upland rims of Bohemia. Here German settlement proceeded peacefully at the invitation of independent Slav princes throughout the thirteenth and early fourteenth centuries. "Village after village, parish after parish over vast areas, with cities and towns in their midst, at favourable locations, are the grand achievement of a purposeful and energetic system of planned land settlement."[1] A third zone was formed by the states of

[1] R. Kötzschke and W. Ebert, *Geschichte der Ostdeutschen Kolonisation*, 1937.

Poland and Bohemia, whither Germans were invited to settle as foreigners with special privileges in lands which remained dominantly Slav in population and speech. German settlement also penetrated the uplands that encircle the Bohemian Plateau, as part of the general uphill movement of farming and mining communities to which we have already referred, and spread into the Czech-speaking land in the heart of Bohemia. In Poland, German settlement spread into West Prussia and Posen, but it was always intermingled with a large native population. Germans and Slavs lived in separate villages and maintained their distinct character. This, too, was formerly the case in Silesia, until, under Frederick the Great, German speech became more widespread, although till 1918 the peasantry of Upper Silesia still clung to their Slavic (Polish) dialect. Town development on a large scale in both Bohemia and Poland was due to the foresight of the rulers. They invited German emigrants, who long formed the bulk of their burgesses' class. These towns enjoyed German law.

German settlement spread still further afield, mainly in towns which were scattered throughout east-central Europe. Villages and towns spread along the Galician Foreland on the northern border of the Carpathians on the route which ran from Cracow to Kiev, as far as Lemberg (Lwow), a German town. They also penetrated the Carpathian foothills, where towns were established for the mining of salt. The Teutonic Knights controlled all the Baltic provinces northwards to the Gulf of Finland in the thirteenth and fourteenth centuries, and the Hanseatic League monopolized the trade. The peasant population in these provinces remained alien in speech, except in East Prussia, where, through a war of extermination and systematic land settlement, the front of close German settlement extended. Even here settlement in the fifteenth and sixteenth centuries penetrated only sporadically into the wilderness of the interior, where, though the Prussian tongue has gone, the Masurians still retain their Polish speech. In Esthonia and Latvia, German settlement was restricted to the towns, some twenty in number, and to a landowning aristocracy, the so-called Baltic Barons. On the coastland, as far as Riga and Reval, a series of merchant cities grew up, modelled on Lübeck, the mother of them all. All these towns had the same stamp of origin, growth and function, and they were closely associated with the Hanseatic League.

German settlers were invited into Slovakia and Transylvania by the kings of Hungary. They established mining settlements in the area south of the Tatra, known as the Zips region, which in the thirteenth century contained twenty-four German towns, that were engaged mainly in the mining of silver and copper. Germans migrated to the Siebenburgen in Transylvania in the twelfth century to defend it against nomad invaders from south Russia. It has been estimated that in 1500 there

were some 70,000 Germans in this area, 20,000 of whom lived in its fortress towns.

The Period 1400–1800. The eastward movement of German settlement and the dominance of German culture and commercial influence throughout central Europe waned in the latter half of the fourteenth century. This was due to a variety of causes. The first was the national awakening of the peoples of central Europe, who had hitherto drawn eagerly upon German culture and trade. Poland and Lithuania reached the greatest days of their cultural and political development in the later Middle Ages and after, and completely defeated the Teutonic Order at Tannenberg in 1410, after which even East Prussia was held as a fief of the king of Poland. The Hussite movement in Bohemia was as much a rising against German influences as a religious movement. Hungary grew to power in the Danube plains, only to be crushed by the Turks in the sixteenth century, who swept to the gates of Vienna, and remained a menace which was not finally removed until their final defeat in 1683. The Hanseatic League after 1370, when it had defeated Denmark, controlled the Baltic Sea and its trade through the medium of a far-flung front of trading stations, reaching from southern Scandinavia (Stockholm and Oslo) to central Russia. But its power, too, waned towards the end of the fifteenth century.

Further, social and political conditions in the German lands reduced the stream of emigration. The ravages of the Black Death in the middle of the fourteenth century reduced the population by one-third. Moreover, prospects of social freedom and economic opportunity were offered by the towns in the west as well as by the lands in the east, and there was a definite local movement in the western lands from the villages into the towns. In the eastern lands, a social system gradually crystallized which without large-scale land reclamation could not absorb more colonists. The land-owning nobility increased their feudal control and gradually deprived the peasants of many of the privileges they were accorded at the time of their first settlement. The nobles proceeded to consolidate their lands at the expense of the peasants and to build up those large estates which characterize the east. Thus, there emerged a landless peasantry, as opposed to the small and independent farmer class which emerged in the west.

The German economic historian, Gustav Schmoller, has summed up the significance of the growth of population in the Holy Roman Empire in the Middle Ages in the following terms: "The increase of population from A.D. 500 to 1340, of two- to threefold, to a total of twelve millions, was a greater achievement than the increase from fifteen to sixty-four millions from 1700 to 1900."

In the three centuries after the end of the Middle Ages, population in

the aggregate changed little in numbers, and villages and towns decreased rather than increased both in number and in size. There was, moreover, no change in the front of German speech; indeed, until the end of the eighteenth century, the eastern frontier was scarcely able to maintain its position. The Thirty Years' War spread havoc and misery over town and country alike. Germany had some sixteen million inhabitants in 1618 but only some four millions remained in 1648. In the west a loss of three-quarters was general to most areas; in the east the losses seem to have been somewhat less, as in Brandenburg, where half the population was killed off. During the next 150 years there was a good deal of emigration from western Germany both to the New World and to the eastern provinces. But the latter drew their colonists largely from outside Germany. Of special significance in this period is the recurrence of large-scale land settlement and colonization in the eastern lands. The kings of Prussia set about the rehabilitation and reclamation of their poor lands in the Northern Lowlands. Marshes were drained, forests preserved, methods of cultivation improved, and large estates subdivided. East Prussia received some 1,500 settlers, West Prussia, annexed from Poland in 1772, quickly received some 10,000 settlers. After the annexation of Silesia from Maria Theresa, Germanization and settlement proceeded apace, although the people of Upper Silesia retained their Slav dialect. Altogether it has been estimated that one million emigrants entered various parts of Prussia during the period from 1640 to 1786, bringing the total population of Prussia in 1800 to some six millions.[1] At this time probably one-sixth of the population of Prussia were either colonists or descendants of colonists of foreign extraction who had entered since 1640, including Dutch, Czechs and, in particular, French Huguenots. If we recall that the native stock in these eastern lands of modern Prussia was Slavic, we realize that the proportion of German blood was extremely small.

In the Danube lands settlement was not resumed until after the withdrawal of the Turks. In the eighteenth century the settlement of the plains was undertaken by the rulers of Hungary, and especially by Maria Theresa. After 1763 the Banat, the Bascka and the Bakony Wald were settled by Germans from southwest Germany. Similar colonization of Germans took place in the lower Volga lands in the south Russian steppes at the invitation of Catherine the Great.

Apart from these movements in the eastern provinces of Russia, and the reclamation of the peatlands of northwest Germany by Dutch engineers, there was little change in the pattern of settlement or of the economic and social structure of the German-speaking peoples. The political reoganization of the German Confederation in 1806 effected no

[1] Kötschke and Ebert, *op. cit.*, p. 141.

immediate changes in social or economic life. The development of modern society began slowly in the first half of the nineteenth century and was quickened by the construction of railways in the middle of the century. But the Reich of 1871 differed little from the Confederation of 1806. We shall discuss later the character of these changes, and their effects upon the geographical structure of society, and merely note here the main demographic changes in population during the last two generations, i.e. from about 1870 to 1939.

Growth of Population by Countries (from Welte)

Country	*Population* 1830, *Millions*	*Density*, 1830, *per Sq. Km.*	*Population* 1930, *Millions*	*Increase*, 1830–1930, %	% *of the Increase in Towns with over* 20,000 *Inhabitants*	
Germany ..	26·5	56	63·2	140	70	
Netherlands and Belgium	6·3	98	14·8	135	75	1
Great Britain and Ireland..	21·3	70	49·5	130	80	
Baltic States	2·5	14	5·3	112	30	
Poland ..	15·0	38	32·0	113	26	
Rumania ..	8·0	27	18·0	125	19	2
Yugoslavia ..	6·5	25	14·0	115	18	
Switzerland ..	2·0	48	4·0	100	50	
Austria ..	3·5	41	6·7	81	63	
Czechoslovakia	8·3	58	14·7	77	30	3
Hungary ..	5·2	55	8·6	65	70	
Denmark ..	1·8	42	3·5	81	60	
France ..	31·8	58	41·8	30	80	4
TOTAL POPULATION	138	—	275	—	—	

Modern Growth. The greatest increases of both aggregate and urban population are recorded in Germany, Holland and Belgium, and Great Britain, the greatest increase being in Germany (see table). In these countries the total population more than doubled, and some three-quarters of this increase was due to the growth of towns with over 20,000 inhabitants. A high increase (over 100 per cent) of the total population is recorded in the Baltic states and the states of Poland, Rumania and Yugoslavia in east-central Europe, though in all these states the proportion due to the towns is very small. The smaller states (group 3) record increases from 65 to 100 per cent, with a high proportion (50 per cent or over) due to the growth of towns. (Czechoslovakia comes out low in the

scale owing to the inclusion of Slovakia; the increase due to towns in Bohemia and Moravia is much higher.) In Hungary the abnormally high proportion recorded as urban is due to the inclusion in this category of great semi-urban agricultural villages, and the predominance of its one great city, Budapest, over the total population of the state. France shows a very small aggregate increase (30 per cent), the bulk of which is attributable to towns.

In 1939 the population of the Reich (1937 area) was 69·3 millions, a total that compares with 50 millions for the United Kingdom, and, without Russia, comprises one-fifth of the population of Continental Europe. This total population lived on an area of 183,500 square miles (roughly twice the area of the United Kingdom) with an average density of 377 persons per square mile as compared with 500 in the United Kingdom, 180 in France, 700 in Belgium and 770 in the Netherlands. During the period from 1871 to 1939 the total population increased from 41 to 69 millions. In 1871 62·6 per cent of the total population lived in rural communities (places with under 2,000 inhabitants), and 37·4 per cent in towns. In 1910 the position was reversed, 38·3 per cent living in rural communities, 38·9 per cent in country towns and 22·8 per cent in large cities. This complete reversal was, in fact, effected by the first decade of this century, so that the revolution in the social and economic structure of Germany took place within one generation. The modern growth of industry and commerce has resulted in the tremendous increase of urban populations and the growth, in particular, of great agglomerations. In spite of this, however, the density of population in the great rural areas of the Northern Lowlands and the Central Uplands remains the same as seventy years ago. The main areas of increase have been in the great towns, and in the wide zones of the middle east–west belt from Silesia to Aachen and in the Rhinelands from Aachen to Karlsruhe, and in the northwestern lowland, Bavaria, and the middle Elbe Basin and Lusatia. All the rest of the country records decreases during the 1870–1930 period.

Percentage of Total Population living in districts with:

	2,000 *Inhabitants*	2–5,000 *Inhabitants*	5–20,000 *Inhabitants*	20–100,000 *Inhabitants*	100,000 *Inhabitants*
1871 ..	62·6	12·9	11·6	7·5	5·4
1910 ..	38·3	11·3	13·8	13·8	22·8
1933 ..	32·8	10·7	13·4	13·0	30·1
1939 ..	30·1	10·8	13·8	13·7	31·6

The steady increase of urban population continued in the 'thirties. Cities with over 100,000 people had 31·6 per cent of the total population in 1939 as compared with 22·8 per cent in 1910 and small towns (2,000–

100,000) remained almost constant at 38·3 per cent in 1939 and 38·9 in 1910. On the other hand, the *Landgemeinde* with less than 2,000 inhabitants had 30·1 per cent of the total in 1939 as compared with 38·3 in 1910. Since the war the growth of the population in the big cities has in general slowed down or decreased owing to the lack of homes and the lack of industrial employment. Undestroyed cities and undamaged small towns, on the other hand, have had some remarkable increases.

Germans have not only moved to towns. They have emigrated overseas. It has been calculated that in the hundred years from 1813 to 1913 about six million Germans left the Reich for overseas. The biggest emigration was 252,000 in 1854. This emigration from 1894 to 1913 reached 40,000 per year. In 1919 the figure was 3,000 only, in 1920 it was 8,500, in 1921, 23,000, in 1922, 35,000, and in 1923, 115,000. After this date, emigration dwindled to an average of some 15,000 a year. But now the renewal of emigration seems to be one way of solving the problem of surplus numbers.

Post-War Changes. The number of foreign workers in Germany was negligible in 1933, but after this date immigration, both permanent and seasonal, was renewed. The total number of foreigners in the Reich in 1933 was 683,000, and in 1939, 641,000.[1] Wholesale transfer of Germans took place during the war. About 600,000 had been transferred by spring 1942 from east and southeast Europe into Germany or German-occupied lands. The foreign labour employed in Germany increased enormously during the war. The total probably reached 6·5 millions at the peak in early 1943, including civilians and prisoners of war.[2] At the end of the war U.N.R.R.A. found about ten million such persons, and returned nearly all of them to their homes in other lands. The remainder are known as "displaced persons" and numbered 850,000 at the end of 1946.

We have witnessed in the last ten years far-reaching changes in the distribution of the German peoples, as of other peoples on the borders of, and in, east-central Europe. The German peoples have been pushed westwards—have in part fled westwards—since 1945 from their scattered eastern outposts, especially in the Baltic states and Slovakia, while the Germans of western Poland, the Sudeten land on the periphery of Bohemia, and throughout the eastern provinces of Germany, have moved westwards into the occupied zones of Germany. In consequence, the front of German settlement has retreated within two years as far as the eastern boundary of the Russian and American zones of occupation.

Today, in a territory occupied by the four Powers of 353,000 sq. km. with 65 to 70 million people, there are 200 people for every square kilo-

[1] *Statistisches Jahrbuch*, 1938, p. 23.
[2] E. M. Kulischer, *The Displacement of Population in Europe*, International Labour Office, Montreal, 1943.

metre. The Allies reckoned with a transfer of 6½ million people from the neighbouring states into Germany, consisting of 3½ from Poland, 2½ from Czechoslovakia, half a million from Hungary, and 150,000 from Austria. But to date out of Polish-occupied territories alone there have come 6¼ million Germans into the four zones of occupation, as well as 3½ million refugees from other areas, so that the new Germany has absorbed an addition of 10 million people. And this movement is presumably not yet complete, for there are still 350,000 in Polish territory east of the Oder-Neisse line, 200,000 in each of Czechoslovakia and Hungary, and 100,000 in each of Denmark and Austria. The total number of refugees reached 11·4 million in July 1948. Somehow or other, by emigration or by the renewed growth of industry as a means of employment, these people must be absorbed.

These movements have caused some remarkable changes in the distribution of population in Germany. The French Zone in the southwest has been very little affected by them. In North Rhine-Westphalia many of the great cities that were seriously damaged record decreases of population. Schleswig-Holstein, on the other hand, records a total increase of 66·8 per cent, Niedersachsen, 41·7 per cent, and Mecklenburg, 52·2 per cent. The population in many rural areas has doubled since 1939!

Demographic Trends. So far the main facts concerning the modern growth of Germany. Let us turn now to its demographic trends in relation to the states of Europe as a whole.

The great growth of population in Europe since the Industrial Revolution was effected for the most part in the latter half of the nineteenth century and was caused by a reduction of the death rate rather than by a rise of births. The development of transport permitted foodstuffs to be imported and the conditions of living improved. Housing, clothing and shelter, public health, and sanitation were improved and the ravages of disease reduced. These living standards, however, for the broad masses of the people in Germany, as in all other European countries, were appallingly low at the opening of the century and, indeed, down to the opening of World War II.

Death rates, nevertheless, began to fall in the late nineteenth century and showed a remarkable and rapid decrease after 1900. Death rates in Scandinavia fell to 20 per 1,000 in the 'sixties, in Finland in the 'seventies, in the Netherlands in the 'eighties, in Italy and Austria about 1910, in most of eastern Europe and the Balkans in the 1920s, and finally in Rumania and probably the Soviet Union in the 1930s.[1] Birth rates, on

[1] For all these data, see Frank W. Notestein and others, *The Future Population of Europe and the Soviet Union, Population Projections, 1940–1970*, League of Nations, Geneva, 1944, especially Chap. II.

the other hand, remained high and did not show any particular trend of decrease or increase except for France where the birth rate has steadily declined since 1820. The general decline did not begin in western Europe until 1870 and then it decreased more rapidly than the death rate and spread from west to east. It dropped to 30 per 1,000 in France in 1830, in Sweden in 1880, in the rest of Scandinavia and England in the 1890s, in Germany, the Netherlands, Czechoslovakia and the Baltic States between 1900 and 1910, in Hungary, Italy and Spain in the 1920s, and in Poland and the Balkans in the 1930s. Only the U.S.S.R. had a birth rate above 30 per 1,000 in 1939. Thus we note, in general, a spread of the decreasing birth rate eastwards from France into central Europe, leaving the U.S.S.R. with an outstandingly high birth rate today.

Until 1910 Germany had the highest birth rate among the countries of northwestern and central Europe (including Czechoslovakia and Hungary), but by 1933 it had one of the lowest, the net reproductive rate in that year being 0·76. The Nazis did what they could to change this situation, in which there are not enough females being born to maintain the same number of females each year. This is a state of affairs, of course, that is common to all the countries of the western world and western Europe. The annual rate of increase from 1933 to 1939 was 0·83 as compared with 0·55 for 1925 to 1933. In 1939 the birth rate was 20·3 and the net reproductive rate was about unity. But even this slightly increased rate if maintained would not prevent an eventual decrease in the total population of Germany. Population on the basis of the fertility levels of the 1937–8 year would have continued to increase until 1955, and in 1970, Germany, without radical changes of boundaries, would have had the highest population of all the states of Europe outside Russia. This forecast, however, is of dubious accuracy, for Germany has suffered tremendous losses during the war and the population has had great upheavals through the shifts of population.

Austria and Switzerland have much the same demographic trend as Germany. In the middle 'thirties Austria had the lowest birth rate and the lowest net fertility in Europe and was losing population by natural increase. But it enjoyed a revival after the *Anschluss* and in 1939 and later years its birth rate was higher than that of the old Reich. Bohemia and Moravia also show the same demographic characteristics as Germany and Austria. Slovakia and Ruthenia are east European from the demographic standpoint, since they record high increases.

The rapid growth of population in western Europe is at an end. Europe has reached its maturity and population stability is being approached in a rapidly changing demographic world. The population totals of individual countries are rapidly approaching their peaks, and all the countries west of the U.S.S.R. are headed for stability or decline.

Careful estimates by experts such as Notestein and others show that all the countries of northwestern and central Europe will cease growing by 1970, most of them by 1960. In consequence, western Europe in the future will have to face the basic problems of the economic and social adjustment of its populations to resources, of a stationary or declining population, and to matters of immigration from other areas into western Europe. This adjustment has been going on for decades in France, while Britain is possibly approaching this stage, and the Germans had to import large numbers of foreigners to carry out the excessive economic programme during the war years. Furthermore, all western European countries will have to readjust their economic, political and strategic attitudes to the increasing importance of larger numbers in eastern Europe, or, in other words, the Soviet Union. Even assuming the same rates of fertility in western Europe, the population of the Soviet Union will be 25 millions greater than that of western Europe in 1970.

The geographical distribution of and changes in the birth rate throughout central Europe are shown in the *Atlas des Deutschen Lebensraumes* for 1910 and 1930 and these maps are generalized in Figs. 15 and 16. There is a remarkable and widespread decrease in the birth rate everywhere in this period. In 1910 France, together with the Walloon and the French Swiss areas, had a small annual birth rate of less than 20 per 1,000 persons. A somewhat higher birth rate is revealed in Germany and its neighbour states. The territories in east-central Europe had the highest birth rates, in general, over 35 per 1,000—Poland, Czechoslovakia, Hungary, and in the south the South Slavs and Italians. In 1930 there is a remarkable change. The birth rate in Germany was almost everywhere the same as in France (12·5 to 17·5 per 1,000), with Bavaria still definitely on the high side. Poland still showed a very high figure with little decrease since 1910. Perhaps most remarkable is the decrease in the birth rate in Hungary and in northern Italy.

These figures may be expressed in another way. The population of Europe in 1815 was 200 millions. This had increased to 300 millions in 1870 and to 456 millions in 1925, that is, it had more than doubled. Probably the most remarkable fact about these changes in population of the individual states and peoples is that in 1815 France had 14·9 per cent of the total, whereas in 1925 the proportion had decreased to 8·3. In 1815 France had a larger share of Europe's population than Germany which had 11·7 per cent in 1815, and 14·9 per cent in 1925. In 1815 France had 30 million people as compared with only 17 million in Britain! France was the greatest Power in Europe. The changes in numbers are even more significant, for in 1925 the population of Germany exceeded that of France by over 25 millions and that of Britain exceeded France by 8 millions. Russia increased its population from 51·7 millions

The Population of the States of Europe (from H. Haufe, *Die Bevölkerung Europas*)

	1925		1815	
	(1)	(2)	(1)	(2)
German Reich	67·4	14·9	22·7	11·7
Great Britain and Ireland ..	48·1	10·6	17·2	8·6
France	40·7	8·3	30·0	14·9
Italy	37·2	8·2	18·4	9·1
Scandinavia	12·2	2·7	4·3	2·1
Balkans (with Bosnia and Herzog)	20·0	4·4	9·0	4·5
Russia	117·0	25·8	51·7	25·8
Austria	26·8	5·9	13·0	6·4
Hungary	22·4	5·0	10·7	5·3
Poland	10·6	2·3	2·8	1·4
Spain and Portugal	26·9	5·9	13·5	6·7
Netherlands	7·8	1·7	2·2	1·1
Belgium	7·4	1·6	3·2	1·6
Switzerland	4·1	0·9	1·7	0·8

Note. Germany as in 1914 without Alsace-Lorraine. Austria of the German Confederation. Hungary as in 1914. France as in 1926. Belgium as in 1914. Russia as in 1870.

(1) Population. (2) Percentage of Total for Europe.

The Peoples of Europe (from H. Haufe, *Die Bevölkerung Europas*)

	1815		1925	
	(1)	(2)	(1)	(2)
Germans	28·0	14·0	80·0	17·7
French	29·0	14·5	43·0	9·5
English and Scotch	15·0	7·5	46·0	10·1
Scandinavians ..	4·4	2·2	12·0	2·6
Italians	20·0	10·0	37·0	8·2
Magyars	3·2	1·6	10·0	2·2
Rumanians ..	3·0	1·5	12·0	2·6
South Slavs ..	5·0	2·5	14·4	3·2
Czechs	3·4	1·7	7·0	1·5
Poles	8·4	4·9	20·0	4·4
Russians	47·0	23·5	113·0	25·0
Jews	1·0	0·5	7·1	0·8
Europe	202		456	

(1) Population. (2) Percentage of Total for Europe.

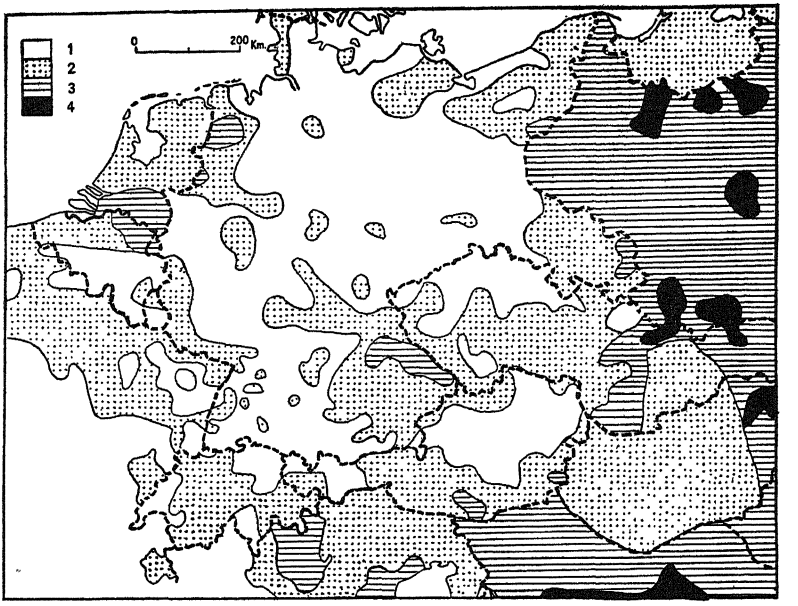


FIG. 15—CENTRAL EUROPE: BIRTHRATES IN 1930 (*from A. d. D.L.*) (scale, 1 : 12 m.)

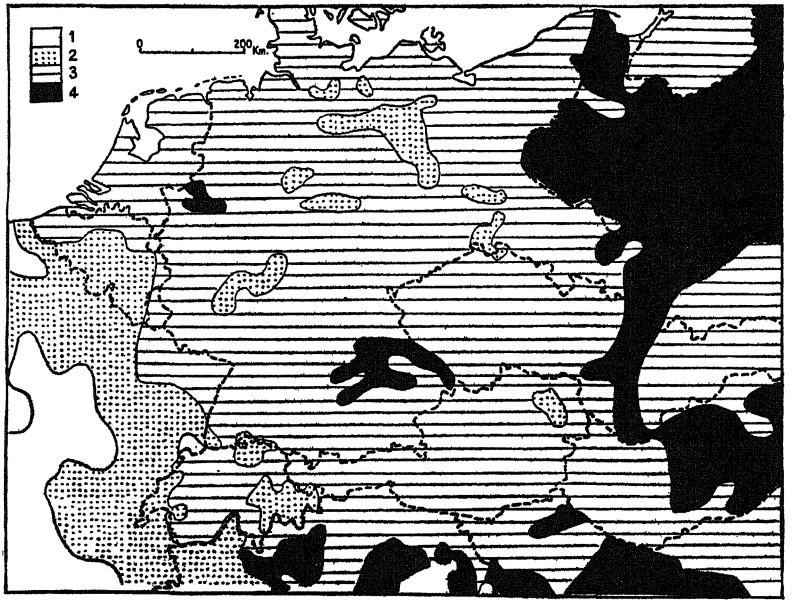


FIG. 16—CENTRAL EUROPE: BIRTHRATES IN 1910 (*from A. d. D.L.*) (scale, 1 : 12 m.)

Per 1,000 inhabitants.

1. 17·5–12·5 and under
2. 17·5–25·0
3. 25·0–35·0
4. 35·0–37·5 and over

to 117·0 millions and the proportion of the total for Europe was exactly the same in 1925 as in 1815, one-quarter.

The numbers of the people belonging to the various ethnic groups is much more difficult to determine exactly, but such figures are available for the same dates, 1815 and 1925. They accentuate these points as based on the pre-1914 state boundaries. The Germans increased their numbers from 28 millions (14 per cent of Europe) in 1815 to 80 millions (nearly 18 per cent) in 1925. This is nearly a threefold increase. The French increased from 29 millions (14·5 per cent) in 1815 to 43 millions (9·5 per cent) in 1925, an increase of about one-half. The British group increased from 15 millions (7·5 per cent) in 1815 to 46 millions (10 per cent) in 1925, a threefold increase. The Russians, though increasing from 47 to 113 millions, made up 23·5 to 25 per cent of the total, a two and a half times increase in a vast primitive rural community. These figures indicate convincingly the problem of man-power. The rest of the Slavs and the Magyars made up 14 per cent of the total as compared with 12 per cent in 1815. In effect, the east European peoples make up 40 per cent of the total population of Europe and have increased in such numbers as to maintain their proportion of the total without industrialization. The tremendous increases in Britain and Germany have been favoured by industrialization though they have both exported large numbers of people. The Slavs effected their increase in primitive, feudal conditions. German, French, British and Scandinavians face a decline of population. The Slav states, and above all Russia, face an era of increasing industrialization and birth rates that are still high and conditions of living that are improving and death rates that are likely to decrease. This is the demographic future, and these trends will become effective in world affairs within our generation.

The demographic contrasts between western and eastern Europe will have fundamental effects on the differing culture levels of the peoples and, in consequence, on their economic and political strength. In Germany, as in the rest of western Europe, the decline of the birth rate is reflected in an ageing population and a decrease in the numbers of child-bearing women. In the three western zones of occupation this decline of the natural increase of population coupled with the great losses incident on the last World War have been offset by the tremendous and unprecedented increase of population since 1945 through the immigration of Germans from central Europe and from eastern Germany. Immigration, together with the great war losses, result today in an abnormally high proportion of women.

The problems of overcrowding and maintenance of an adequate standard of living are more acute in Europe than ever they were, even given a resumption of the same level of economic conditions of the 'thirties. The

one hope in this repect is the remarkable recuperative capacity of the peoples of western Europe, in spite of all that is said of the "decadence" of European civilization by American writers, both after World War I and, still more notably, after World War II. Within two years the volume of industrial output in the countries of western Europe has exceeded the 1938 level, though agricultural output in some countries is still under this level. Production in western Germany has steadily risen and is now well above the pre-war level. The prime problem now, however, is the great increase of population in western Germany. The northern section is primarily industrial. Large areas in the south are predominantly agricultural and pretty well self-sufficing (with, of course, local crop movements) without having any large margins of surplus for dispatch to consuming areas in northern Germany. The industrial north must produce more foods and goods and export so as to maintain its greatly swollen numbers.

CHAPTER 5

THE DISTRIBUTION OF POPULATION

THE DISTRIBUTION OF POPULATION IN 1830

THE FIRST census reports at the beginning of the nineteenth century permit us to picture the distribution of population as it was three centuries after the Middle Ages. This was the framework upon which the great changes of the ensuing hundred years were to take place. Fig. 17A shows the distribution of population in central Europe in 1815. It is a reproduction of Haufe's map from his work on the population of Europe. The so-called rural densities exclude the towns with over 5,000 inhabitants, but include over 2,000 small country towns with less than 5,000 people. It will be observed that a great belt of high density with an average of 50–80 persons per sq. km. extends from Brittany, through northern France and the Low Countries, thence through central Germany, Bohemia and Moravia to west Galicia. This may be regarded as the main belt of high population density in Continental Europe north of the Alps. A second high density belt lies in the Rhinelands, including Switzerland. Areas of moderate density (30–50 persons per sq. km.) cover large areas in the eastern Alps, in much of France, Schleswig, and the Danish islands. Apart from these areas, and the north Italian plain, which is a separate area, this great central core of high densities is bordered by areas of low rural density with less than 30 persons per sq. km., in the Alps, the areas south of the Save and Danube, and in the Northern Lowland east of the Weser.

The east–west belt begins in Flanders (120 per sq. km.) and, from west to east, it includes the lower Rhinelands, the middle and upper Weser uplands, the Thuringian highlands and the middle Elbe basin, the Erzgebirge (with a high density in the eastern section around Dresden), the north and east of Bohemia, notably the upper Elbe basin and the Sudetes mountains (80–90 per sq. km.), Moravia and west Galicia (with a well-defined limit on the upper Vistula), and an extension to eastern Galicia in the upper Dneister basin. The Rhineland belt includes the Rhine gorge itself and the flanking plateaus, notably the Siegerland (60–70 per sq. km.), and the whole of the upper Rhinelands. The latter include the Neckar basin (100 per sq. km.), Alsace and the districts on the western slopes of the Vosges, and the northeast of Switzerland.

These two belts of high density are to be related to two sets of condi-

tions. First, they include the areas of richest soils, notably the loess belt on the northern border of the Central Uplands from central Belgium to Galicia, and the rich soils and vineyards of the Rhine and its tributary valleys, the Main and the Neckar. Secondly, it will be noted that the highest densities are often to be found in upland areas, such as the Siegerland, southern Vosges, St. Gallen district in Switzerland, the Black Forest, Thuringian Forest, Erzgebirge and Sudetes. Here developed the mining industries at the end of the Middle Ages and

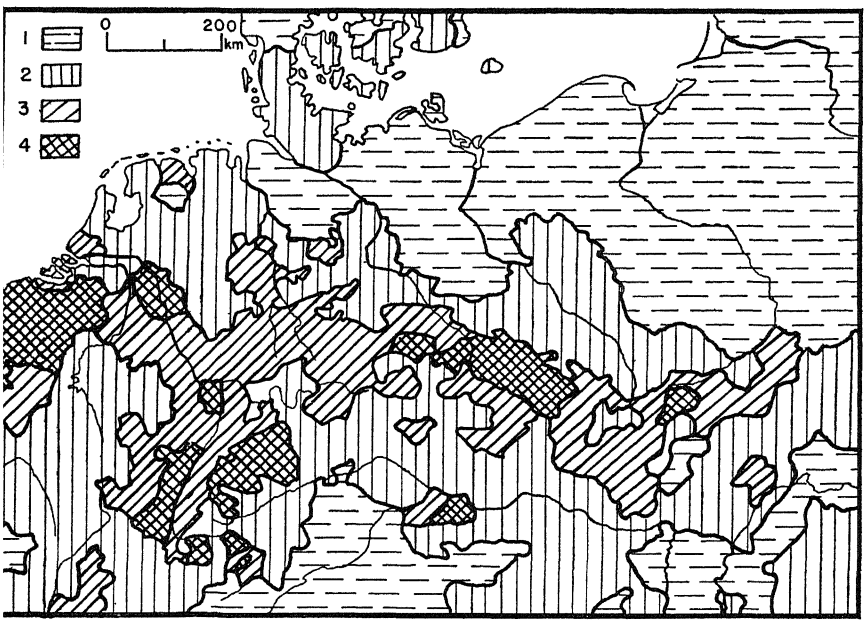


FIG. 17A—CENTRAL EUROPE: DENSITY OF RURAL POPULATION in 1815 (*from Haufe*) (scale, *c.* 1 : 12 m.)

Persons per sq. km. 1. Under 30; 2. 30–50; 3. 50–80; 4. over 80.

after; with their decline a change in occupations was sought by the mining communities as an alternative livelihood, and the textile industries were developed, partly by State encouragement, as in Silesia and Saxony. Until the middle of the nineteenth century these upland areas were the chief seats of industry in Germany, as they were in France and Belgium.

The towns at this period still lived in their medieval framework. (Fig. 17B.) The railway had not yet appeared and the town still served pre-eminently as a focus of trade and administration for its surrounding area and as a seat of handicrafts. The towns had much the same general distribution and size and the same functions and build as in 1500. The size of the towns with over 5,000 people was mainly a measure of their

nodal position in relation to the great water and land routes. The small towns (5,000–10,000) were fairly evenly distributed over the land. Only five in the Reich exceed 60,000, the largest being Berlin and Hamburg. When all the towns are considered, one may distinguish two main belts of greatest concentration, which correspond with the zones of highest rural density. The lower Rhineland, the Saxon *Börde*, the middle Elbe area, Silesia, and Moravia form one zone. The middle Rhineland, the Neckar basin and the lower Mainlands, and northern Switzerland, form another zone.

Towns were evenly spread over the face of the land and served primarily as centres of industry, commerce and administration for their surrounding territories. The large cities were commercial centres with a great variety of industries catering for markets beyond the limits of the local market district. They were located always on the outstanding avenues of commerce—on the coasts in good harbours (a good tenth of all cities) and on navigable rivers, especially where these were crossed by important overland routes. With few exceptions the chief cities of today were the chief historic cities, and they were among the first towns to develop in the early Middle Ages. The numerous smaller towns, with under 20,000 people, appeared in the later Middle Ages (after 1200) and had less natural nodality. They were situated at the convergence of local routes and often on sites with natural defences—hilltops, spurs, river meanders—without adequate connection with the surrounding countryside for purposes of trade. Finally, the even spacing of many small towns on main routes obviously reflects their importance as stages (German, *Rastorte*) on the great overland routes. This is particularly true, for instance, of the small towns of Hesse, which grew on the skein of routes that ran from north to south between the Rhine Massif and the Thuringian highlands. It is true also of the remarkably evenly spaced towns along the routes of Thuringia, and of those along the routes of Franconia that in the later Middle Ages radiated from Nuremburg like the spokes of a wheel.

In the seventeenth and eighteenth centuries "court cities" such as Mannheim, Karlsruhe, Kassel, Ansbach and Bayreuth were established in considerable numbers. Ancient cities appeared on the Rhine from source to mouth. Another series lies along the great west–east thoroughfares that linked Bruges, Cologne, Hanover, Brunswick, Magdeburg, Halle, Leipzig, Breslau, Cracow, and Lemberg. In southern Germany, along the network of highways that emerged in the later Middle Ages, each city shown on the map was an outstanding node of routes. Between these main routeways, however, there were relatively few large cities. They are markedly absent in the Northern Lowland of heath and marsh.

There was a marked clustering of towns with 5,000–20,000 inhabi-

tants in southwestern Germany, in Württemberg, Baden and Bavaria, and in the northern foreland zone on the border of the Central Uplands. Many of these were medieval towns that grew to be small industrial and commercial centres associated with the industrial development of the mercantile era. The great majority of towns appeared in the later Middle Ages, but these are so small as not to appear on this map. Most of these later towns did not enjoy the importance of the earlier towns as route

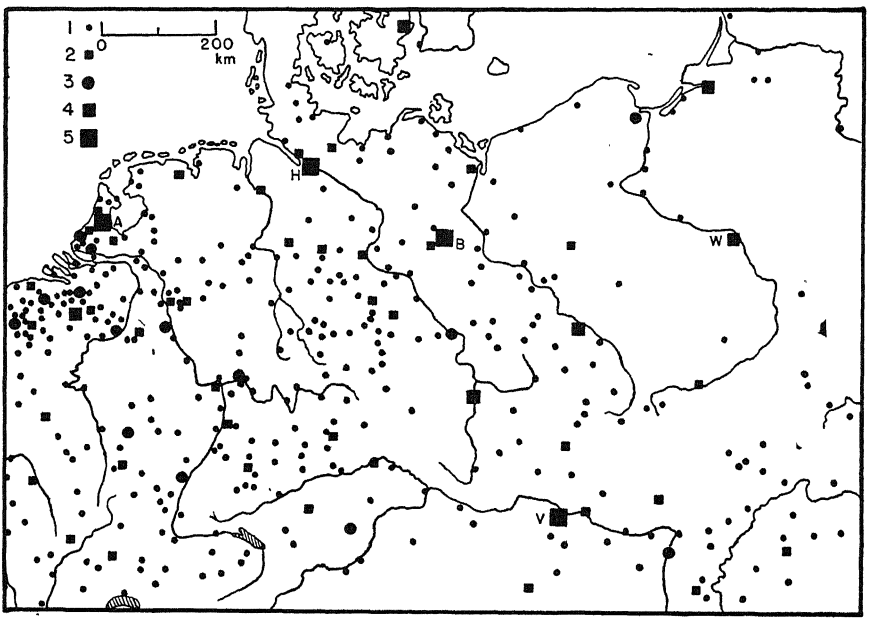


FIG. 17B—CENTRAL EUROPE: TOWNS in 1815 (*from Haufe*) (scale *c.* 1 : 12 m.)
Number of inhabitants: 1. 5–20,000; 2. 20–40,000; 3. 40–60,000; 4. 60–100,000; 5. Over 100,000.

centres. In fact, they lie at local route junctions to serve a local hinterland or to develop local mines. In addition, since many of them were founded primarily as fortresses or were sited next to castles, they were invariably placed on well-protected sites, such as a hilltop, a river meander, or a spur, and were for that reason cut off from easy contact with the country around. Many small towns established at this time have failed to function, for this and other reasons, and are today nothing more than villages. This is characteristic of many of the towns of southern Germany in Württemberg, where they have been described as "speculative failures" from the point of view of their medieval founders.

During the first three-quarters of the nineteenth century the chief seats of industry in Continental Europe were in the towns and in the

cottage and the small workshop in the Central Uplands. Such areas were the iron-working districts of the Ardennes, the Sauerland and the Siegerland; the textile-working districts of the Erzgebirge and the Sudetes; the glass- and porcelain-working districts of Bohemia and Thuringia; and the wood-working and textile districts of the Black Forest, the Vosges, and the Swiss uplands around St. Gallen. Outside these upland areas, which recorded some of the highest densities of population at this time, the Low Countries was the chief seat of industry and had accordingly high population densities. Industrial towns such as Ghent in Flanders and Amiens in Picardy had early lost their monopoly of medieval industry, through the hampering restrictions imposed by the town guilds, and in the seventeenth and eighteenth centuries handicraft industries developed rapidly in the country villages and, together with a close rural settlement in small-holdings, accounted in this area for the highest densities in Europe in 1815. The areas of greatest density of rural population were to be found in the fertile lands with well-drained, warm soils on the northern border of the Central Uplands and in the valleys of the Rhinelands. The Northern Lowlands and the Central Uplands were unsuited to close farming settlement, since they had infertile soils, and, in the latter, unfavourable climatic conditions. Farming settlement in the uplands, depending on rye, potatoes and pasture, reached to about two thousand feet. Beyond this limit the initial attraction to settlement was the exploitation of minerals and metals. And it was this fact which started the close settlement of these lands, for with the decline of the mining and metal-working in the seventeenth and eighteenth centuries, the population had to seek alternative livelihoods in new industries, the chief of which was textile-working.

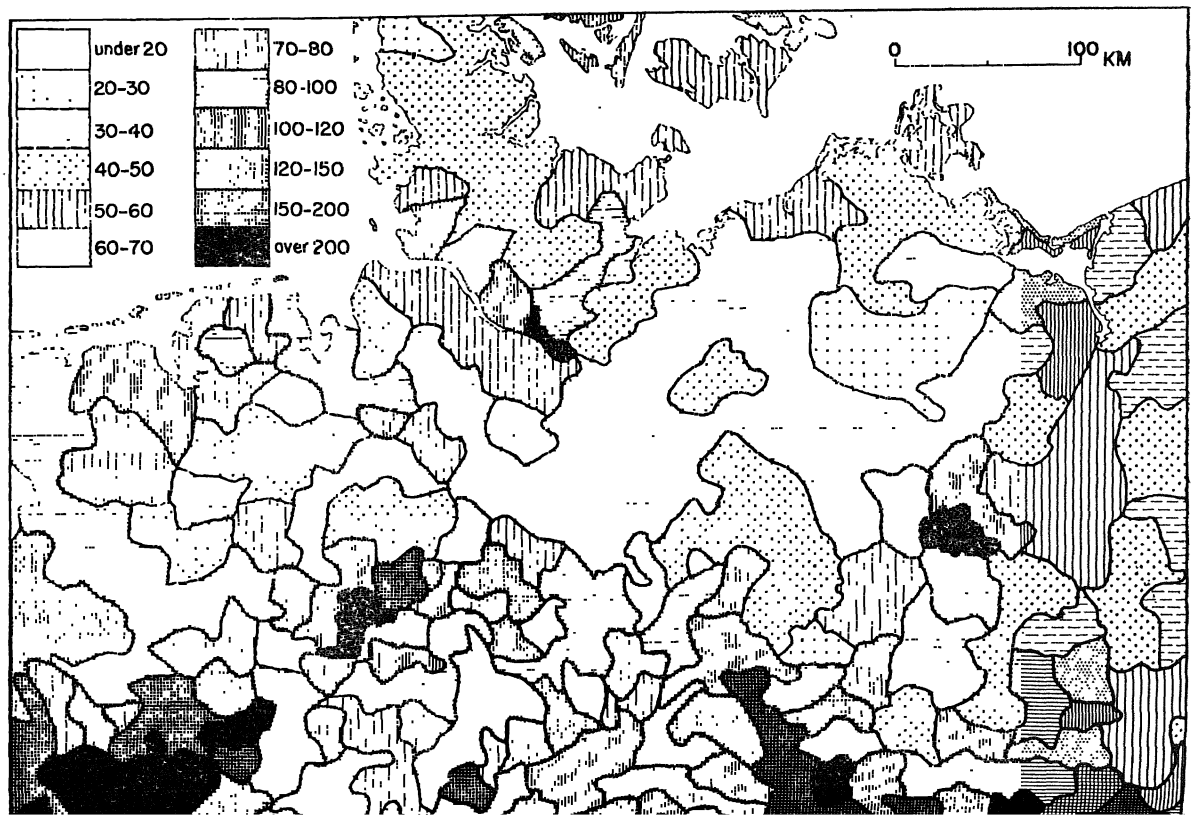
THE DISTRIBUTION OF POPULATION IN 1930

The general pattern and density of settlement in Continental Europe in 1815, which had persisted since the Middle Ages, remained until 1870. Within one generation from this date, however, a new economic and social structure based on coal and iron had appeared. By 1910 almost everywhere the factory had replaced the cottage worker and the small workshop. Within one generation the structure of society was radically transformed.

Two general points of contrast between Britain and Germany should be emphasized. The Industrial Revolution in England started in the latter half of the eighteenth century, but on the Continent the mine and the factory did not really take root until a hundred years later. The exploitation of coal and iron in England started before the appearance of the railway. Consequently we find that the factories and the furnace,

no less than the coal-pit, were concentrated on the coal-fields. There was thus a shift in population from southeastern England to the central and northern provinces. Historic cities like York and Exeter took scarcely any part in the early growth of the new industries, for the simple reason that it was far too expensive in those days to bring the coal from the pit to the city by horse-drawn wagons. On the Continent, on the other hand, and especially in Germany where modern industry appeared latest, *the railway net was virtually complete before the great industrial development took place.* This meant that the coal-fields did not exert such a strong influence on the localization of industry, except for the heavier varieties. The old seats of industry in the uplands which were far removed from sources of coal, were able to adapt themselves to the new factory conditions, partly by bringing coal by rail, partly by using running water, and, in and after the 'eighties, by obtaining power from the electric dynamo from local or distant generating stations. Similarly, the long-established historic cities which had served for centuries as the centres of the life and activity of large surrounding territories were able to continue their functions as seats of both commerce and industry—both specialized industries, seeking far-flung national and international markets, and regional industries, catering primarily to the surrounding territory. Thus, Cologne, a historic city like York, instead of remaining of medium size, has been able to share in the development of industry in the lower Rhine lands, especially of the Ruhr (facilitated, it is true, by its location, unlike York, on the great traffic artery of the Rhine). While not in the Ruhr, economically Cologne is a part of it, and its wealth helped to finance the beginnings of the new industry in the growing coal-field. Thus, historic cities which in 1815 had only some 30,000–50,000 inhabitants today reach the million mark and rank with the greatest cities in the world. As a consequence, we find that on the Continent, while there is a great and new concentration of population on the coal-fields, there is a continuity of economic development, both in the great historic cities and in the old seats of rural industry in the upland areas.

A second feature to be emphasized is that a purely fortuitous combination in the distribution of Nature's resources has resulted in the general continuity of settlement, not only of the great historical cities, but also in the general pattern of the distribution of population throughout west-central Europe. The modern culture complex of Western civilization is based on power and transport. The chief sources of power are coal, brown coal or lignite, and water. By a chance of Nature it so happens that the great coal-fields form a belt on the northern edge of the Central Uplands between and near to the populous rural land of the Loess Belt, and the thickly peopled industrial areas of the northern border of the


under 20
20-30
30-40
40-50
50-60
60-70
70-80
80-100
100-120
120-150
150-200
over 200
0
100 KM

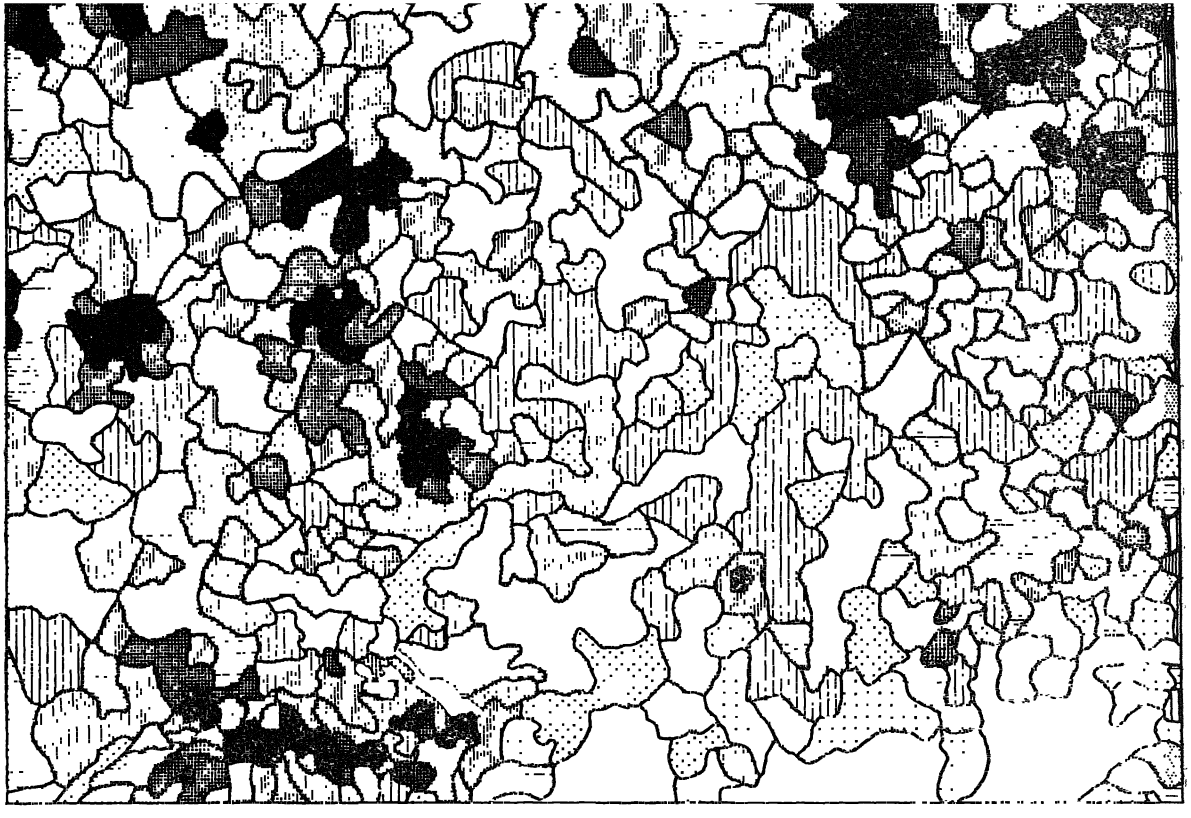


FIG. 18—GERMANY: DENSITY OF POPULATION IN 1930, EXCLUDING TOWNS WITH OVER 10,000 INHABITANTS (*from A. d. D.L.*) (scale, 1 : 4 m.) Key gives persons per sq. km.

Central Uplands. The historic Rhine lands are accessible to the modern great coal-field of the Ruhr by means of the artery of the river Rhine. Thus the modern growth of population on the coal-fields and in the Rhineland has served to accentuate the pre-industrial distribution of population, and not to cause great shifts of population belts as occurred in England.

Coal and lignite fields extend in a fairly continuous belt from northern France to Upper Silesia, and they correspond with, and indeed in part actually lie under, the loessic soils. Coupled with this is the fact that in this belt the great medieval routeways from east and west and north and south converged. Along it occur a series of historic cities which today, in many cases, have become great seats of industry and commerce. Continuity of tradition and continuity of the general settlement pattern are, therefore, characteristic of west-central Europe. This is especially true of Belgium and Germany. In France the chief seats of industry have shifted from the periphery of the Central Massif to the coal- and iron-fields in the north. But even here the development of industry in the coal-field revived many of the historic cities of ancient Flanders. In Germany, the Ruhr industrial area clustered around several historic cities, Duisburg, Essen and Dortmund. Upper Silesia and the Saar, however, are two entirely new areas of mining and industrial development and population concentration which were formerly forested and thinly peopled, although the development of the Silesian field has affected the development of the old cities of Cracow and Breslau near to it. It is owing to this combination of factors that we find in general a correspondence between the belts of high population density in west-central Europe in 1815 and 1870 and 1930. There has been a tremendous increase in the urban population since 1870, but this, by and large, is built upon the pattern of settlement distribution of 1815, though within this belt great urban agglomerations have emerged.

The highly industrial and thickly peopled areas demand both raw materials for their industry and food for their people. They require access to Continental and overseas markets. The populous areas thus form a zone of dense routes with great mobility of persons and goods. In this connection the most momentous single fact is that the zones of greatest industry and population density are situated near, on, or astride, the political frontiers. This is eminently true of the frontiers between France, Belgium, Holland, Germany and Switzerland. On either side of the frontier between Germany and Czechoslovakia, which lies in a zone of upland, there is no break in the zone of high population density from the Fichtel Gebirge to Upper Silesia. In these populous areas there is thus a close exchange of commodities, a daily and periodical flow of traffic across the political frontiers. It is especially remarkable

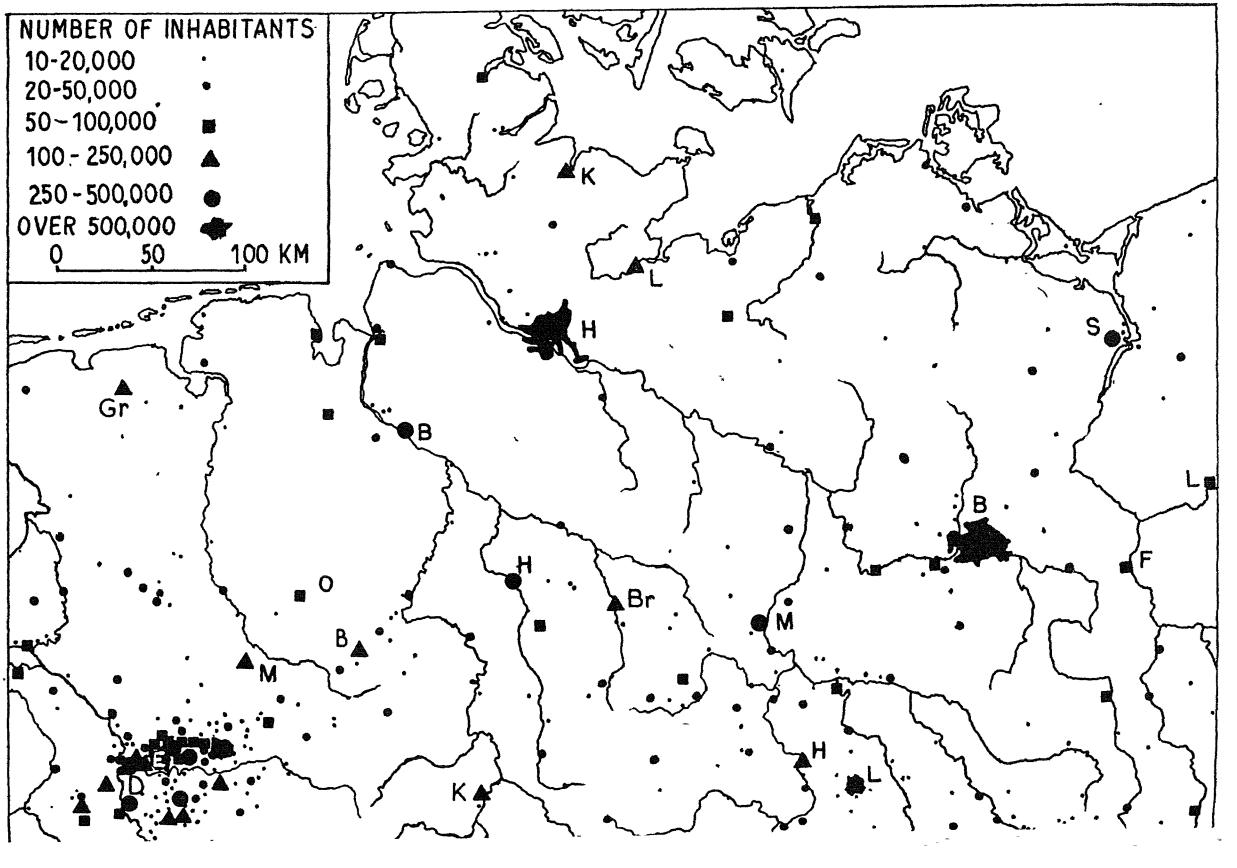
that the coal-fields of Germany lie near its frontiers, while the biggest iron-ore field in Europe, that of Lorraine, was formerly divided equally between France and Germany, but has been entirely in the hands of France since 1918.

Refer to Fig. 18, showing the distribution of rural population in 1930.[1] We note two great belts of high population density, with high concentration of urban populations. These may be termed the Mid-European and Rhineland belts. The Mid-European Belt is part of the main axis of dense population which extends from the British Isles to central Russia to which attention has already been drawn. There are three chief areas of concentration in it in central Europe: the middle Elbe basin; the upper Elbe basin in Bohemia with Prague as its centre; and Upper Silesia, which is connected with the Cracow district.

The Rhineland Belt begins with French and Belgian Flanders, includes all central Belgium (except the Ardennes to the south), western and southern Holland (except its northeastern provinces), and the whole of the German lower Rhinelands (Rhineland-Westphalia) as far south as Bonn. It is continued southwards through the Rhine gorge, where it includes the eastern part of the Rhine Massif. A great area of high density is again reached in the middle Rhinelands. This belt is continued without break into the Swiss plateau, which contains over three-quarters of the population of Switzerland, and is bounded to the south by the Alps and the Jura. The belt contains several districts of high concentration: first, central Belgium and the Departments of the Pas de Calais and the Nord in northern France, with its geometrical focus in Brussels; second, the lower German Rhinelands area, which is linked directly with the Belgian Sambre-Meuse district via Aachen, and embraces the whole of the wing-shaped depression of the Cologne Bay, with the uplands which flank it south to Bonn; third, the Upper Rhine Plain with its chief clusters in the Mainz-Frankfurt district and the district of Mannheim-Karlsruhe, and the Basel-Mulhausen district, which is directly continued into Switzerland. Flanking the middle Rhine are two other areas of high density, namely, the Neckar basin, centred on Stuttgart, and the Saar basin and the Moselle valley in eastern France. Both of these areas in eastern France are of recent rapid growth, and, a hundred years ago, were thinly peopled like the lands of the Ardennes plateau to the north and the lowlands of Lorraine to the south of them.

The distribution of towns with over 10,000 inhabitants in 1930 is shown in Fig. 19. The chief concentrations of population are on the coal-fields, the most important of which is the Ruhr area with over three millions. Others are located at focal points suitably situated for the

[1] This includes total population, less all towns with over 10,000 inhabitants each, by *Kreise* or their equivalents.


NUMBER OF INHABITANTS
10-20,000
20-50,000
50-100,000
100-250,000
250-500,000
OVER 500,000
0 50 100 KM
K
L
H
S
Gr
B
L
B
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Br
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B
M
H
L
K

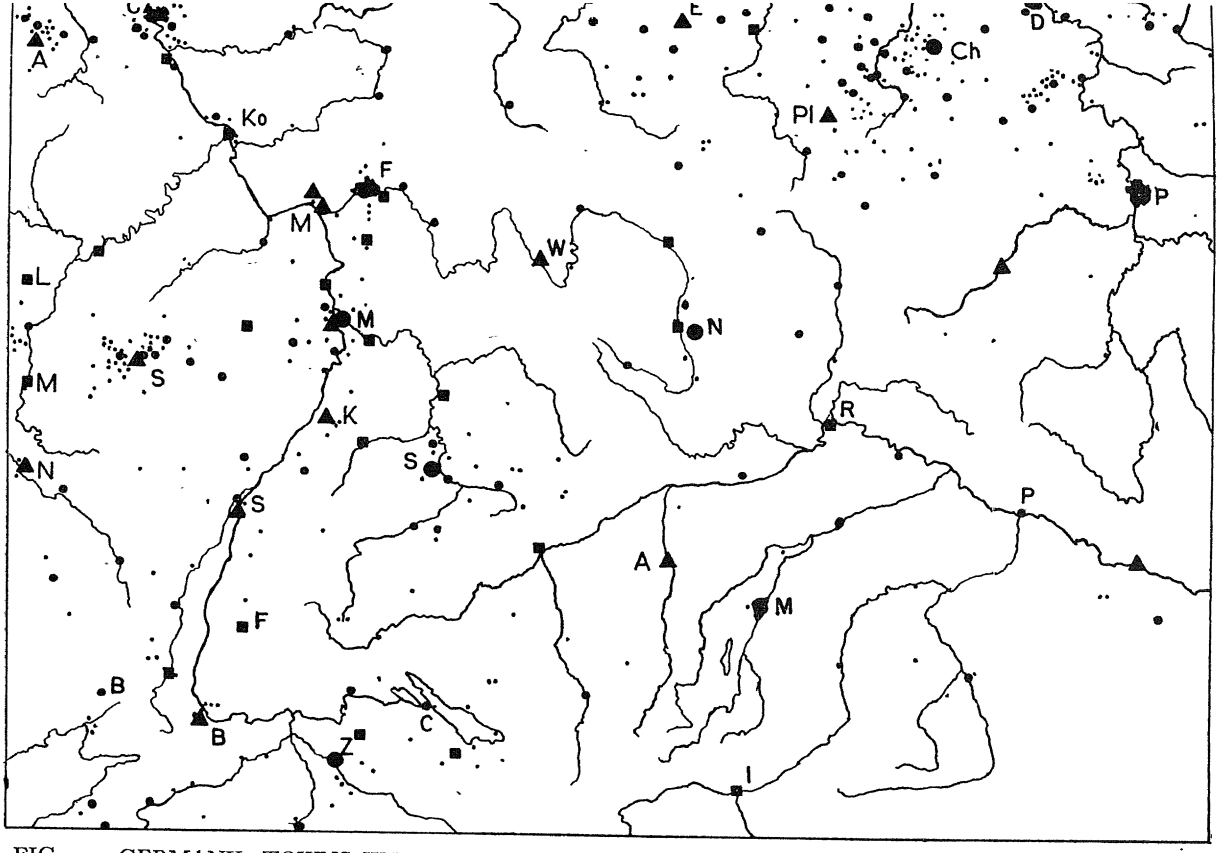


FIG. 19—GERMANY: TOWNS WITH OVER 10,000 INHABITANTS IN 1930 (*from A. d. D.L.*) (scale, 1 : 4 m.)

growth of large-scale industry, as in the middle Rhinelands; and in seats of old-established industry where further growth on modern lines has taken place, as at Augsburg, Nuremberg, and especially in Saxony. The great cities of the Middle Ages have also been able to continue to grow as seats of industry and commerce, and the ports, especially on the North Sea frontage, have developed a great variety of industries based upon the treatment of their imports and on shipbuilding. A number of smaller towns, serving definite tributary areas, have been able to increase their functions as industrial and commercial centres, like Münster, Würzburg and Erfurt. But the overwhelming majority of the small country towns with a few thousand inhabitants have inariably shown a decline. It will be observed that the main areas of concentration of towns with over 10,000 inhabitants are in the two populous belts, while in the districts of greatest concentration almost the entire population is urban in character. Outside these belts, the towns are spaced at even distances of some fifty kilometres (thirty miles) apart, except for the occasional great cities. In the whole area there are sixteen cities with over 500,000 inhabitants, and most of these, when their contiguous urban areas are included, almost reach or exceed the million mark. These are Essen and Dortmund in the Ruhr, Cologne, Amsterdam, Rotterdam, Brussels, Frankfurt, Hamburg,* Berlin,* Leipzig, Dresden, Prague, Warsaw* and Vienna,* Munich and Lille. Those marked with an asterisk have well over a million inhabitants.

Having localized the main population belts, we may now turn to the more thinly peopled areas, with a small rural density and an even distribution of small country towns. These are three in number. First, a great triangular area of medium density (100–175 per sq. mile) covers the heart of the Central Uplands, between the two populous belts, with its southern base against the Alps and its corners in Constance, Kassel and Vienna. Within this great area there are patches of higher density centred around the cities—Erfurt, Würzburg, Nuremberg, Augsburg, Munich and Pilsen. To the north of the Mid-European Belt is the thinly peopled belt of the Northern Lowlands, with a rural density over most of the German section of only 75–100 per sq. mile. Higher densities are found in the northern coastlands and in northeastern Holland. To the east in Poland, there was a very low density of population in 1871. Since 1871 the population of central Poland has increased greatly owing to a high birth rate, the absence of emigration and the development of large-scale industry. To the south, the Alps form a wide zone with a sparse population, except along the deep valley lowlands.

CHANGES IN POPULATION DISTRIBUTION, 1870–1930

The main features of the distribution of population have not greatly changed since 1871. The rural population in Germany increased by 54 per cent and the urban (with over 10,000 inhabitants) by 170 per cent from 1815 to 1870. The most notable changes in this period were the large increase of rural population of 75 to 125 per cent in the eastern provinces, due to the abolition of serfdom, the increase in the amount of peasant land under cultivation, and the development of commercialized farming on the larger estates. Similar large increases are recorded in the middle Elbe basin, where commercialized farming made great headway on the loessic soils. They also took place in the reclaimed areas of the moor and heath lands of northwest Germany and Holland. Rural population more than doubled around the newly developing industrial areas in the lower Rhinelands, Saxony and Silesia. The Rhinelands and Bohemia record a normal increase of some 30 to 75 per cent. These areas of normal increase include the Rhine Massif and the Upper Rhine Plain and the Rhenish Palatinate, as well as the whole of Bohemia and the eastern foreland of the Alps. Areas of actual decrease, or an increase well below the average (under one-third), are recorded in most of the Westphalian Lowland, the whole of Hesse in the upper Weser lands. The whole of southern Germany (north of the Danube between the Black Forest and the Bohemian Forest highlands) records decreases that are undoubtedly to be associated with different systems of land ownership, whether by inheritance through the eldest son or through the equal subdivision of holdings, both circumstances being a stimulus to emigration.

The period of greatest growth was from 1870 to 1925 (Fig. 20). The population of Germany in this period increased by 26 per cent on the land (total population minus towns with over 10,000 inhabitants in 1870) and by 250 per cent in the towns (with over 10,000 inhabitants). This was the period in which the people of the countryside migrated in large numbers into the industrial areas of the cities or emigrated overseas. The population of the rural areas (total population minus towns with over 15,000 in 1925) increased very little (15 to 50 per cent), or remained stationary (0 to 15 per cent increase), or actually decreased.

The most marked increases were in the large cities and other industrial areas. Outstanding are the lower Rhinelands, the upper Rhinelands (Frankfurt and Mannheim districts), the Saar, the western section of the middle Elbe basin (Magdeburg, Leipzig and western Saxony), Upper Silesia, Berlin, Dresden, Hanover, Bremen, Hamburg, Munich, Nuremberg, and Stuttgart.

Apart from the urban areas, there are several rural areas which record

an increase due to the extension of rural land settlement, although numerically it is quite small. These areas include the Dutch and Frisian polders, the heaths of Jutland and Schleswig, the Lüneburg heath, the moors of the northwest of Germany, and the heathlands of Veluwe of Holland, northern Brabant and the Campine. These areas stand out as a belt of increase which is all the more striking since the closely settled marsh and loess belts to the north and south were areas with a *decreasing*

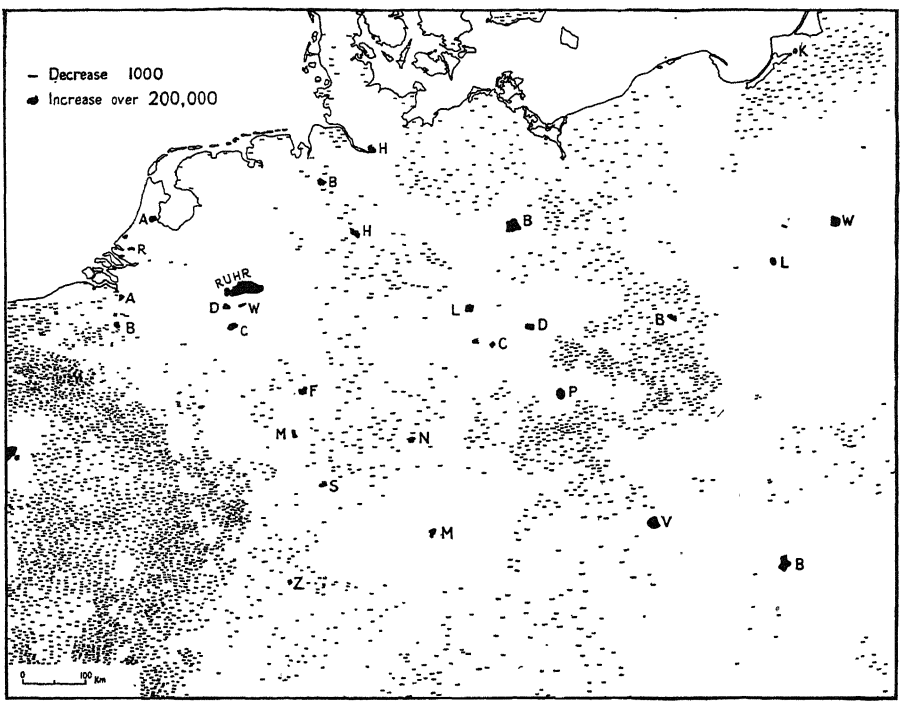


FIG. 20—CENTRAL EUROPE: GROWTH OF POPULATION 1870–1930 (*from A. d. D.L.*) (scale, 1 : 12 m.)

Figures based on administrative districts of the order of *Kreise*, with the deduction of urban centres with more than 2,000 inhabitants. Dashes indicate numerical decrease in rural areas, unshaded areas are areas of increase of population in rural areas. Symbols show these urban areas with increases over 200,000.

population. The reasons for this increase are varied, partly land reclamation, the mining of buried coal-fields, as in the Campine, and residential development as in the Lüneburg Heath (for Hamburg), and the Veluwe (for Amsterdam).

Large areas are affected by rural depopulation. This applies to the whole of northeast Germany—but not to the adjacent Polish areas. The latter in virtue of a continued high birth rate and small emigration to industrial areas—which is the main drain on the east Ger-

man lands—still showed a steady increase. This last feature also applies to Posen, West Prussia and Upper Silesia, which are dominantly Slav provinces. This fact is of great importance as indicative of a deep sociological difference between the Germanic and Slav peoples. While the German birth rate among the German peoples had declined as throughout western Europe, that of the Slavs has declined less and is still much higher than that of the Germans. The same is true of the Czechs, who have not only emigrated in large numbers, but have moved into the towns and to a large extent displaced the German people. All the eastern provinces of pre-1918 Germany were drained by emigration to Berlin and to the Rhine industrial areas. A large part of the Germans in the eastern provinces lost to Germany after the 1914–18 war emigrated to Germany. A total of some 84,000 people left West Prussia and Posen between 1910 and 1925.

Large rural decreases are recorded in south Bohemia and west Moravia, where the Czech population has drifted into Prague, Pilsen and the north Bohemian industrial area; whereas in Slovakia, with a high birth rate and little industrialization, the increase in the rural area is maintained. Depopulation has prevailed throughout eastern France and among the Walloon peoples of south Belgium. Within Germany itself the rural areas of the Central Uplands have declined in population. Indeed, a belt with substantial decreases includes Württemberg, northern Bavaria, Bohemia, and the Sudetes. People have moved from here to the cities and emigrated overseas. There have also been decreases in Upper Silesia outside the coal-field and in the *Börde* of Magdeburg and Halle. There have also been decreases in the Alps except for the main valley floors. The Bavarian Plateau, on the other hand, shows a slight general increase, a fact which is probably to be associated with the relatively high birth rate. Here, too, some new land was reclaimed for settlement.

Thus, within Germany we see that the chief areas of population increase are in the towns and the industrial areas, while the rural areas show a marked and positive decline in their total population, except for those areas in the Northern Lowlands and the Bavarian Plateau which have been affected by land reclamation and other factors. This German area is clearly flanked to the east by areas of moderate density from Carniola to East Prussia. Here the land has been settled for centuries and there is some sporadic industrial and urban settlement. Immediately to the east of this belt are the dominantly Slav and Magyar lands. Throughout these areas we find an increase of population; and their peoples, in spite of the long and close association of the western belt with the German realm, maintain distinctive folk traits. They also have a high birth rate, which clearly distinguishes them from the peoples of western

Europe, among whom the birth rate has decreased in the last thirty years. To the west of the German-speaking areas, the French-speaking rural areas, much of Switzerland, and the western Alps, together with the Piedmont of Italy, record a large and consistent decrease of population. The Lille and Lorraine industrial areas are the only exceptions to this widespread feature.

Part III

THE HABITAT

In der Landschaft prägt ein Volk sein Geistiges und seine Schicksale ein, wie in seine Städte und Häuser. Wie die Geschlechter sich wandeln, so ändert sich auch von einer Zeit zur anderen dieses Gepräge.—Friedrich Ratzel, 1896.

[1] A people expresses itself through its landscape, just as it does through its towns and houses. As generations succeed each other, so this expression changes as time goes on.

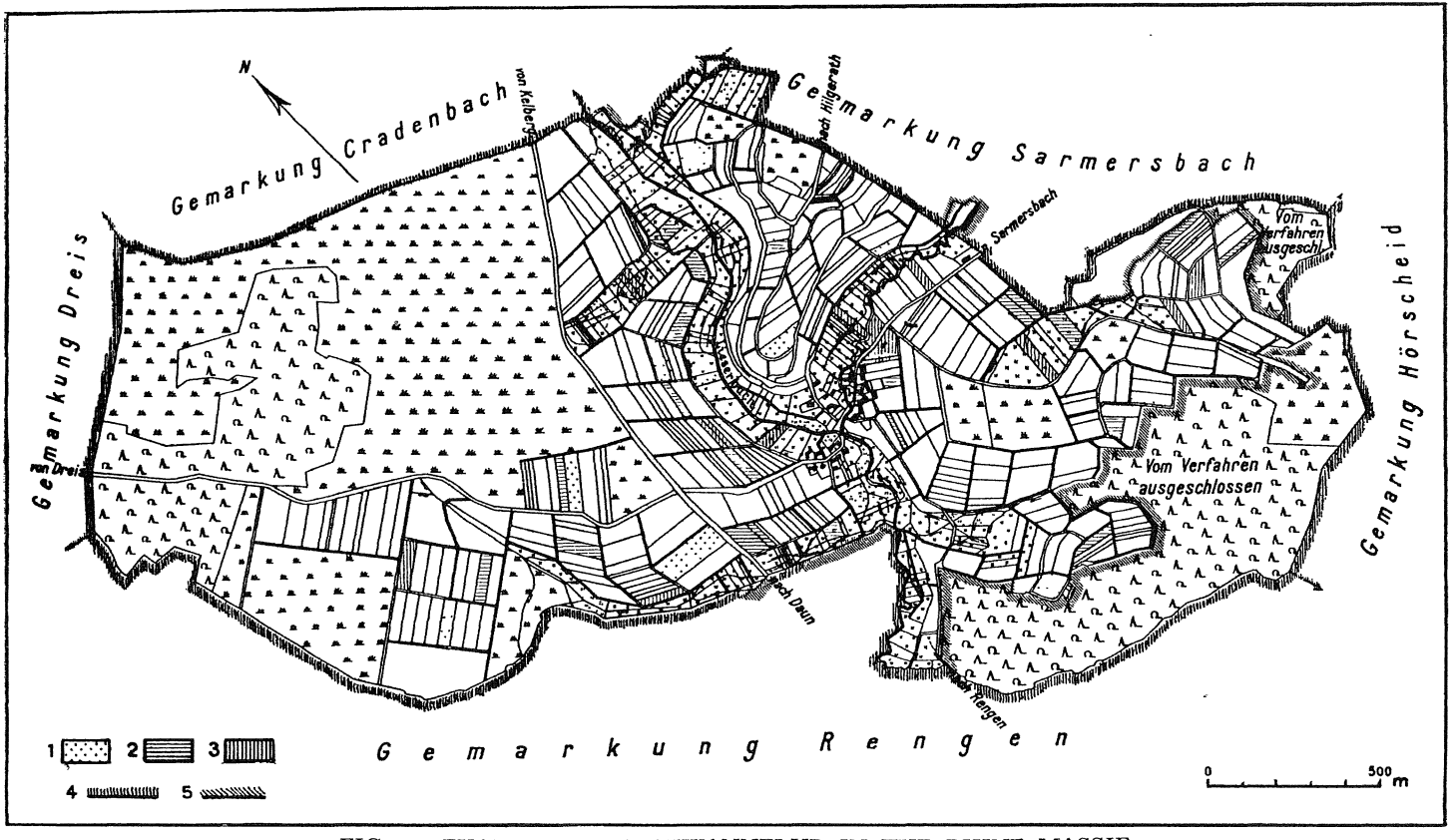


FIG. 21—EXAMPLE OF A GEWANNFLUR IN THE RHINE MASSIF

CHAPTER 6

FIELD, FARM AND VILLAGE

SINCE THE publication of Meitzen's classic work in 1895 a vast amount of research has been undertaken on rural settlements in Germany, and especially notable in recent years have been the contributions of geographers, trained in the technique of the medieval historian. Numerous documented studies of small districts and comparative studies of larger districts have appeared, and the stage has now been reached at which it is possible to generalize for the country as a whole in respect of the morphology of the rural habitat and the historical and physical factors involved in its development and regional variations.

There are two extreme types of grouping of rural settlement: the isolated farmstead, placed in the midst of its own fields, and the nucleated village, in which all of the farmsteads are clustered in the centre of the village lands. Between these two extremes, there are numerous gradations which depend upon the social and economic history of the community. The form of the rural habitat is due to the interplay of historical and physical conditions. Historical conditions are such as the date and circumstances of the origin of the settlement (whether by individual squatters or groups of settlers under the supervision of high authority), the laws of inheritance (which varied in Germany from state to state). Physical conditions are such as the relief of the land and the fertility of the soil, and the suitability of these conditions to either pastoral or arable farming, the latter in general being favourable to the maintenance of the compact habitat, the former to the dispersed habitat. The form of the rural settlement is also inseparable from the type of field system with which it is associated.

FIELD SYSTEMS

There are two distinct kinds of field arrangement in western and central Europe, the one with long, narrow strips, five or six times longer than their width; the other with compact fields, ranging from a few square

Fig. 21—(The Commune of Nerdlen, Kreise Daun, Reg. Bez. Trier) (*from Aubin and Niessen*) showing the property divisions after the consolidation of strips in 1905.

1. Property of owner A, formerly 296 strips, now 24
2. Property of B, formerly 216, now 21 strips
3. Property of C, formerly 92, now 13 strips
4. Boundary of commune
5. Boundary of area affected by the consolidation decrees

yards to many acres. The general descriptive term for the long strips in German is strip system or *Streifenflur*, and for the compact fields, block system or *Blockflur*, in which *Flur* refers to the system of field arrangement. Such terms as *Gewannflur*, *Eschflur*, *Waldhufenflur* and *Marschhufenflur*, that will be explained later, refer not so much to the system of arrangement as to the mode of economy and mode of origin of the rural community associated with the field system (*Flur*). The long strips are associated with the *Gewanne* system. Each *Gewann* or furlong contains a group of strips belonging to the peasants of the village. The *Gewanne* (of which there may be a considerable number) are grouped into three large open-fields (*Zelgen*), in which a compulsory and communal rotation of crops was adopted. This subdivision of strips becomes more minute with the continued subdivision of holdings, and this indeed may have been one of the ways in which the system developed from an initial grouping of a few farmsteads whose owners engaged in the common cultivation of their lands. It is also probably associated with the use of the heavy wheeled plough, called the *Scharpflug*, drawn by teams of oxen, for with this plough the land was furrowed in long strips so as to avoid repeated turnings (Fig. 21).

The block system is best suited to the individual farming of separate holdings (Fig. 22). It is associated in origin with lands that used the small plough or the *Hakenpflug*, the French *araire*, or the Latin *aratrum*. This simply digs into the soil, without turning a furrow. This light plough required intercrossing cultivation of the land and seems to have been associated with small, rectangular-shaped fields in lands held in severalty. This ancient field pattern is found in the uplands of Celtic Britain (seldom exceeding two acres) and was adopted in the south of France. It is characteristic of the Mediterranean lands. The enclosed fields with individual holders also developed in northwestern Europe through the disintegration of the medieval strip system with its communal cultivation, or through the settlement of individual settlers on new land. It is the system that is characteristic today of England, Scandinavia and parts of northwestern France and northern Germany. It is found throughout the newly settled lands of the New World. Both the scattered strip system and the consolidated holding were adopted in the growth of new rural settlements during the Middle Ages.

The elaborate organization of field strips of individual owners scattered in regular order in different furlongs or *Gewanne* (a *Gewann* being an area with long narrow strips arranged with the same length and common limits) around a central cluster of farms, and subjected to a communal organization of procedures in three open-fields, developed during the early Middle Ages. It was the product of a long process of evolution that certainly developed *after* the time of Tacitus, for it was

unknown to the Germanic tribes. The system apparently began to develop with the institution of the compulsory grouping of adjacent strips for cultivation, for which purpose they were surrounded by a temporary enclosure, called a *Zelge*, so as to protect the grain from the cattle. This practice seems to have appeared first in northern France in the eighth century and its development and spread during the Middle Ages was due to two main conditions: first, the introduction of the system

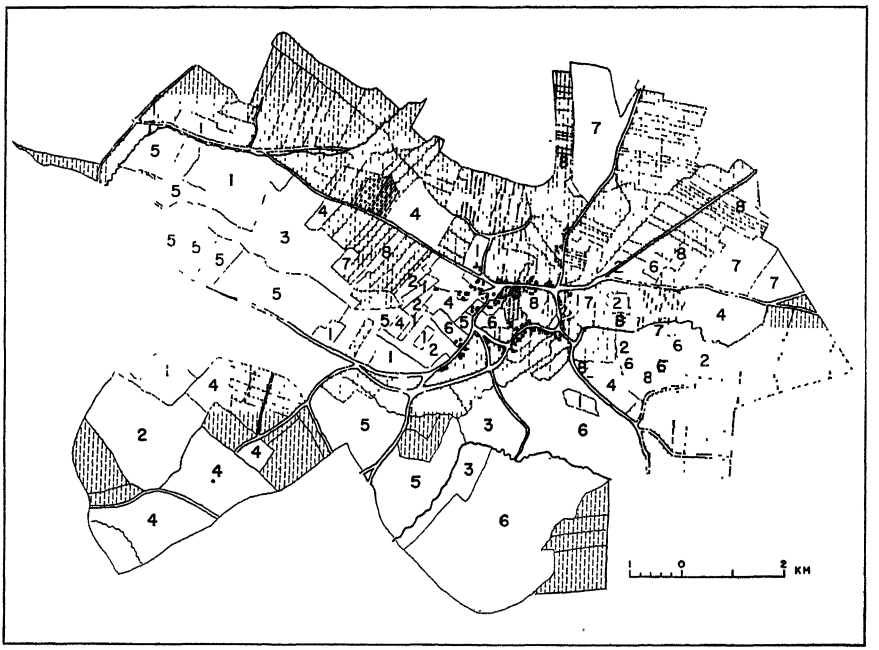


FIG. 22—EXAMPLE OF A BLOCKFUR FIELD IN SILESIA (Lalise, Kr. Militsch, Silesia) (*from Ebert*) (scale, *c.* 1 : 15,000)

Numbers refer to the properties of individual holdings, whose farmsteads are in the village. Shaded areas are scrub and heath. Unumbered strips are additions; these are mainly clearings in the waste land.

of the equal division of property between all descendants (*Realabteilung*); and, second, the great spread of grain cultivation that took place with the growth of population during the early Middle Ages. The *Gewann* system, in other words, reflected a mode of social organization that evolved to fit the needs of a stock-raising folk that turned gradually to the cultivation of grain together with the rearing of stock—cattle, sheep and pigs.

It has been customary in modern researches to regard the *Gewann* system, with a central compact village, as revealed by the first cadastral

maps of the early nineteenth century, as something fixed in its topographic arrangement. In fact, though it appeared as a finished form in the later Middle Ages, the individual *Gewanndorf* was the product of a long process of topographic growth that can be clearly traced in the historic formation of the field patterns. This historical or genetic approach to the interpretation of the village field system characterizes recent work and has thrown new light on the whole question of the development of settlement forms.

TYPES OF RURAL ECONOMY ABOUT A.D. 1800

At the time of Tacitus the two-course system of rotation, derived, it would appear, from the Mediterranean civilization of the Romans, and temporary cropping of land for a few years following upon the burning of wood and scrub, were common throughout the German lands. The temporary, shifting cultivation gradually passed out during the Middle Ages, although it persisted in high and inaccessible places and is still practised in isolated areas such as the Ardennes. By this means large areas of forest were destroyed and their place taken by heathland and moor. The temporary cultivation of grassland was another form of cultivation that was widespread in the early Middle Ages. The land was tilled by a group for a year or so and then allowed to revert to pasture for many years. This was comparable to the Infield and Outfield system in Scotland and Ireland. The Infield was the continuously cropped land, and the Outfield contained the patches of temporarily cultivated land in the extensive surrounding heath and grassland. The practice was still carried on in the Rhenish Palatinate in the fifteenth century.

During the Middle Ages, however, the three-field system gradually developed out of these earlier systems. The system certainly does not go further back than the Carolingian era, and there seems to have developed a fairly clear geographical distinction between the areas in which the two-course and three-field systems respectively were adopted. The better wheat lands usually were used for the three-field system with a rotation of wheat, spring barley and fallow. The inferior lands had a two-year rotation of fallow and rye. In other words, the two-course system survived on the poorer soils and on small holdings and also on holdings that were worked mainly with oxen. On the other hand, the three-course system developed on the better soils on larger holdings and in areas where the horse began to be used as the chief work animal. The latter is the basis of rotations to this day over much of Germany.

During the sixteenth century the four-course system developed with the suppression of the fallow that became possible with the introduction of fodder and root crops. This change began in northern Italy and

Flanders, both closely settled areas with many towns in which the demands of the urban markets and, in Flanders, the use of night soils as fertilizers, certainly contributed to the development of farming techniques. The horse, it should be noted, was not used as a work animal until the early Middle Ages and then it was especially associated with the lands of northern Europe on its main ploughlands.

Among the additional methods of cultivation in practice in Germany in 1800, we may note in particular the practice of continually cultivating one area of arable land, with the aid of heavy manuring, with virtually no rest for fallow. An occasional year may be reserved for fallow in some areas, but the land is essentially permanently cultivated arable land. This *Einfeldsystem* involved twenty and more years in rye (in exceptional cases as many as one hundred years) without fallow, but with heavy manuring. A variant, that was not so widely practised, involved five to ten years of rye, followed by oats or fallow. A third variant, by far the most common in 1800, involved two to three years of rye, followed by buckwheat or oats in the third or fourth year. *Freie Körnerfolgen* involved the rotation of both summer and winter grains over a period of five to seven years followed by fallow. Each property owner pursued his own rotation irrespective of the rotation on neighbouring strips. This system seems to have been adapted by the Franks from the Romanized lands. The *Dreeschsystem* was a long rotation. It began with buckwheat, then, after manuring, three to four years of rye, then two to three years of oats, and finally two to three years of *dreesch*, that is, a natural growth of grass.

In distinction to these systems, there was another in which land would be ploughed for a few years and then allowed to revert to meadow, wood or heath. The ploughed land may be overgrown with grass and pastured by cattle. This is known as *Feldgraswirtschaft*.[1] Or it may be left unused and be overgrown by scrub and even woods. This is known as *Feldwaldwirtschaft*. In these practices, the common method was to burn over the land in order to prepare it for cultivation, and the ash would be ploughed in. This practice was widely followed in the "outer field" of the village community in 1800, whereas the lands near the village cluster, the "inner field", were subjected to a continuous rotation. The temporary cultivation of the outer field was known by various names, but in the Eifel it was called *Schiffelwirtschaft*. The general distribution of these three types of rural economy in the Rhine Massif is shown in Fig. 71, (p. 436).

The main crops during the Middle Ages were wheat, barley, millet and spelt, all of which were of very early origin, dating from the days of

[1] The field in grass is called a *Dreesch* (variously spelled) or an *Egarte* (in south Germany). Thus, *Dreeschwirtschaft* and *Egartenwirtschaft* are alternative terms.

Neolithic Man and the beginnings of agriculture. Rye, oats and buckwheat were later arrivals and did not become widespread until the Middle Ages. The first two appeared during the Iron Age, and became important during the Roman era, and the third was introduced from central Asia by the Mongols. Oats were grown as a spring crop and rye as an autumn crop. During the Middle Ages, owing to the shortage of manures and animal feedstuffs, livestock were fed in the forest and the heathland, on grass, mast and shrubs, and these areas within the confines of the rural community area were often more extensive than the arable lands. Beech mast was one of the mainstays of animal feed. It was not until the end of the Middle Ages that meadows began to be more intensively used. As for non-agricultural crops, flax and hemp were the chief sources for clothing apparel.

Significant changes took place at the end of the Middle Ages and during the following centuries. There was throughout western Europe, including the German Rhinelands, a gradual change from a manorial, feudal economy, to a money economy. The lords began to sever their relations with the bonded peasantry, and a free peasantry began to appear. Moreover, the landlords began to consolidate their holdings for the commercial production of corn, wine and fruits, dispensing with the peasant owners and replacing them with wage-earners. Fields were consolidated and hedged for pasture and the rearing of sheep and cattle. Thus, tenants were often dispossessed (*Bauernlegen*) and the large consolidated holding (*Gutsherrschaft*) replaced the demesnial economy based on feudal relationships (*Grundherrschaft*). The cultivated land ceased to expand about 1300 and changed very little in extent until 1800. During the fourteenth century the division of holdings began in some areas, instead of all the land falling to the eldest son, so that the younger sons received smaller grants of land of five acres or less. Such a small-holder was called a Cotter, or, in German, a *Kötter*.

The farm economy of western Europe at the end of the Middle Ages was essentially a sustenance economy. Most of the arable lands, that were worked in Germany almost universally on the three-field system, were under arable cultivation, with bread corns as the staple crops, wheat on the good soils, rye on the poor soils. Rye was the main grain in north and south and was synonymous with the German word *Korn*. Cattle and pigs and sheep were pastured mainly in the woodlands, which were opened up to settlement as they were cleared, and often were overstocked and depleted in this way. The fallow land in the three-field system was also used universally for temporary common pasture. The prerequisite for improved breeding of stock lay in the care of meadow land and this did not take place effectively till the end of the Middle Ages. The three-field system was widespread in central and southern Germany. Only

in the upland districts did one find that the forest or scrub was cut or burned to make way for cropping for one or two years, then left to revert to rough growth for a period of years to recuperate its fertility. The crops grown in addition to the grains were vegetables and some fruits, flax and hemp for local cloth making, dye plants for the dyeing of cloth, and oil-yielding plants as a substitute for the olive oil of the Mediterranean and for the butter that was not yet a general item of consumption. The vine was known of course in the Roman Empire and reached the Rhinelands, but vineyards were often destroyed by the Germanic invaders. The spread of vine cultivation was taken up by the Carolingian kings in the Rhinelands and also in western or inner Germany, principally on the royal and ecclesiastical demesnes. Fruits were also known within the Roman Empire. But in the Middle Ages in northern and western Europe fruits such as apples, pears, quinces, medlars, etc., were still gathered wild from the woods. It was not until the end of the Middle Ages that the consolidation of holdings and the permanent ownership of holdings permitted the plantation of orchards that demanded fixity of tenure and continuous ownership. Although economy was mainly self-sufficing, there was local exchange of farm goods. The chief of these were corn, cattle and dairy produce, that were locally exchanged from one small producing area to another through the medium of the market town. There was also a slow development of long-distance commerce. Salt and iron were among the oldest and most essential of these items, but during the Middle Ages there grew up a trade in specialized agricultural products such as exports of wines, from Alsace throughout west Germany, chestnuts, almonds, and olives.

At the beginning of the nineteenth century the open-field system of communal cultivation was practised over most of Germany. Enclosure took place in the latter half of the eighteenth century in Denmark and Sweden, as in England, but not as a rule in Germany, where the right to combine holdings (*Verkoppelung*) was not made legal in Prussia and other of the German states until the latter half of the nineteenth century. Free agriculture with separate enclosed fields was found especially in the southwest in the pastoral areas of the Alps, the Black Forest and the Vosges, but more particularly in the fertile arable lands of the Rhine Rift valley, where maize, tobacco, potatoes, vines, orchards and hops were grown as commercial crops and demanded individual ownership and tillage. A good deal of individual farming took place also in the isolated farmsteads in the northwestern lowlands.

In the early nineteenth century there were remarkable contrasts in agricultural conditions, farming methods, and land ownership, between the older western lands and the eastern lands beyond the Elbe. In the west, the feudal system had in large measure been liquidated, and though

the peasant had to fulfill many dues to his lord, he was free of many restrictions. Forest and common land generally belonged to the village community, and dues were often commuted for rent, although the peasant was still subject to the manorial courts. In the east, however, the landowners were able to build up large estates after the sixteenth century through the expropriation of the peasantry and by the beginning of the nineteenth century there was already a large, landless peasantry. This was in contrast to the west where the peasant invariably had some land, even though, as in the upland areas, it was inadequate to support his family. The emancipation of the peasantry commenced in Prussia with Frederick the Great and became general with the edicts of 1807–8, though this enabled the Junkers to evict many small-holders from their lands and thus add to the rural proletariat. In Prussia, copyholders received full ownership of their land on surrender of one-third of their property to the lord, and all others were to cede one-half, though till 1850 all who did not possess oxen and part of the village fields were servile, so that they gradually became the landless class. West Germany profited from the introduction of the Code Napoleon before 1815; the peasants were owners and there was no big landless class.

Emancipation in eastern Germany was very tardy. In Prussia throughout the nineteenth century the manor continued to be an administrative unit under the authoritarian rule of its "squire". In the southern states, on the other hand, legislation abolishing the manorial and feudal order continued throughout the nineteenth century, and feudal services were often replaced by a quit rent. During the century much of the common land was subdivided and passed from the ownership of the commune to the individual. But legislation for the rearrangement of fields did not come into force until the last quarter of the century. The landowners in the east were thus enabled greatly to consolidate their holdings and to take full advantage of the great advances in agricultural practices in the last decades of the century. It is thus not surprising that the great rural exodus started in the 'seventies with the growth of industry in the Reich in urban centres. Sugar beet and potatoes, two principal crops in the modern German economy, became important in the early nineteenth century. The first was introduced at this time for the production of sugar, and the latter, though it had been grown for some time, increased rapidly with the new demands for pig-fattening and the production of industrial alcohol.

RURAL SETTLEMENTS IN THE WEST GERMAN LANDS

There are fundamental differences in the history of land settlement and, consequently, in the morphology of the rural habitat between the west and the east German lands.

The first areas of German tribal settlement in the middle of the first millennium of the Christian era were located in lands that, at that time, carried little or no woodland, and that had been occupied continuously from Neolithic time.

It is generally accepted that there had already been some clearance of trees in prehistoric times. Man was attracted to the loess as to other types of soil by its fertility, and by the fact that it was well-drained and easily tillable with simple implements. The above term refers to the forest-free and lightly wooded lands on the eve of the great era of forest clearance in the latter half of the first millennium A.D. The forest-free areas were also not restricted to the loess soils, but were found on other well-drained soils, as is noted below. Though pollen analysis has disproved the hypothesis of a dry Sub-Boreal phase, in which the steppe-heath (*Steppeheide*) flora entered (it was already there), and though forest clearance by felling and burning was carried on by prehistoric man, there is still no reason to doubt that these areas were still free of forest, or only lightly wooded, at the time of the settlement of Neolithic man in the west German lands. (See pp. 72–6).

Place names indicate the early phases of German tribal settlement. Suffixes indicating the first phase of German settlement are *ingen* (in Luxembourg), *hein* (in Rheinhessem), *leben* (in the Magdeburg *Börde*), *stedt* (in Holstein). A second phase, from the fifth to eighth centuries, involved the establishment of new villages near to the original ones, that included very little forest clearing. Such places bear suffixes like *hofen*, *dorf*, *hausen*. Some of the places have the suffix *weiler*, the origin of which is much disputed, but certainly derived from the Latin *villa*, and some of these places certainly succeeded Roman settlements. German scholars regard these *weiler* places as entirely new Germanic (Frankish?) settlements. The overwhelming majority lie west of the Rhine.

These first-settled lands (*Stammland*) were mainly on the loess and limestone soils, which stretch almost continuously in Germany from the Cologne Bay to Silesia; and cover large tracts of lowland and wide valley strips in south Germany—in the upper Rhine plain, the valleys of the Neckar and Main, and parts of the Bavarian Plateau. They also included smaller areas in the dry sandy heathlands of the northern lowlands. In all these areas the irregular clustered village is today characteristic, as in 1800, surrounded by its arable lands, meadows, common pastures, and woodland. (Fig. 23.) The arable lands were divided into strips (*Hufen*) and cultivated according to a time-table and usage prescribed by the village community. Beyond the arable land were the meadows and the forest. The common lands were described as the *Allmende*. This is the so-called *Gewanndorf* in which the village is named after the type of field arrangement with which it is associated. The village itself consists of a

cluster of farmsteads and other buildings, in which the streets are irregular in width and direction, and the houses irregularly disposed with respect to the street frontage and to each other. For these reasons it is called, alternatively, "clustered" or "nucleated" village or the *Haufendorf*. It is found throughout the early settled lands of western Germany, but there are important contrasts of settlement between the north and south.

(*a*) *Northern Germany*. The so-called dispersed or isolated habitat is today characteristic of the Northern Lowlands west of the Weser, but it extends southwards beyond the lowlands to include the northern part of the uplands of the Rhine Massif. Recent researches have made it clear that the dispersed habitat in Lower Saxony and Westphalia (and, it may be added, in the adjacent parts of the Netherlands[1]) is a secondary dispersion from an original open grouping of scattered farmsteads, which formed a single community engaged in the cultivation of small patches of arable land in the midst of uncultivated heath and marsh. This settlement is now considered to be the earliest type of German rural settlement in northwest Germany and in it are to be found the beginnings in this region of the three-field system and the irregularly nucleated village (*Haufendorf*), as well as of the isolated farmstead. From the field system associated with it, this initial settlement has been called by German scholars an *Eschdorf*, and it can be studied today in many settlements which have changed very little since early medieval times. (Fig. 23.) Its centre is a portion of the common pasture (*Allmende*) called a *Brink* with oak and elm trees on it, in which, irregularly spaced at some distance from each other, are placed six to twelve farmsteads. Around this village nucleus lie the separate *Esche*, each a small furlong system (*Gewannflur*). The *Esch*[2] is placed on slightly raised ground, usually an elongated oval in shape, with a sand or loam soil. It was divided into long narrow strips, about 5–15 m. wide and 200–1,000 m. long, and these belonged to the farmers of the community (*Vollerben*) only. The *Esch* was sown with rye year after year, and its fertility maintained by heavy *plaggen* manure, a compost of scrub from the heath and cattle dung. Through centuries of manuring, there has accumulated a soil layer with a colour at the surface of dark grey changing in depth to brown, and with a total thickness of 20–70 cm. Each *Esch* was separately hedged as a protection against cattle and formed an island of cultivation in the common mark. The latter, the *Gemeente*, was heath, swamp and peat bog, and served as common cattle pasture.

[1] H. J. Keuning, " L'Habitat rural aux Pays-Bas ", *La Néerlande, Études Générales sur la Géographie des Pays-bas*, Congrès Inter. de Géog., Amsterdam, 1938, pp. 93–119.

[2] G. Niemeir, "Eschprobleme in Nordwestdeutschland und in den Niederlanden", *Comptes Rendus du Congrès International de Géographie*, Amsterdam, 1938, Tome Deuxième. Also Carl Baasen, *Niedersächsische Siedlungskunde*, Oldenburg, 1930, and R. Martiny, "Hof und Dorf in Altwestfalen", *Forsch. z. Deutschen Landes- v. Volkskunde*, XXIV, 5, 1926.

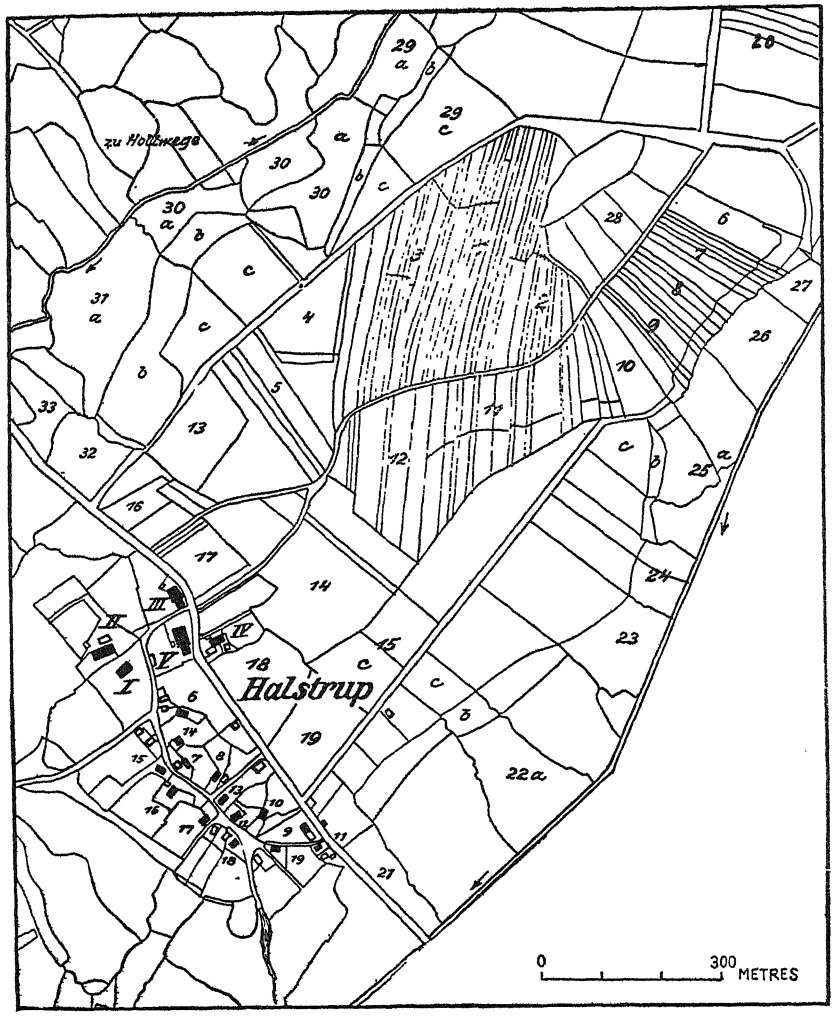


FIG. 23—EXAMPLE OF A *DRUBBEL* IN N.W. GERMANY: HALSTRUP (*from Baasen*) (scale, 1: 12,000). Plan dated 1840

This is a *Drubbel* village in the Oldenburg Ammerland. The cluster of farmsteads is adjacent to an *Esch*, that stretches from N.E. to S.W. on slightly raised ground. I to V are the farmsteads of the original landholders (*Altbauern, Vollerben*); 6 to 19 the farmsteads of the small holders (*Kötter*). The fields (*Fluren*) are numbered: 1 to 12 are *Gewanne* (*groups of strips of the Vollerben*) on the *Esch*, and the remainder are enclosed (*Kämpe*). Individually owned meadows (*a*), woodlots (*b*), and common land subdivided in the early 19th century (*c*), lie on the lower, ill-drained land to the N. and S. of the *Esch*.

There are serious objections to the use of the term *Esch* in settlement terminology. The word simply indicates a *Flur* of arable land. Its name is derived from Gothic and means grainland. Though the name is widely used, its exact meaning varies, for it may be used for one of the fields in a village with a fully developed three-field system, and, indeed, the method of division of an *Esch* into field strips varies widely. Consequently, the terms *Langstreifenflur* and *Drubbel* are now in general use by German scholars as more exact terms to designate, first, the nuclear section of arable land that is divided into long narrow parallel strips; and, second, the open cluster of farmsteads associated with it, the word *Drubbel* being an old popular Westphalian topographic term to describe a hamlet.[1]

The *Drubbel*, as described above (Fig. 23), is to be found almost unchanged in the dry, sandy heathlands of the northern lowlands, as in the Hümmling and the Lüneburg Heath. Elsewhere, it has been transformed to give today either a compact village on the fertile soils or a completely dispersed settlement. In richer arable lands, the addition of new farmsteads and the houses of craftsmen in the *Brink* led to the reduction of the woodland and the extension of the arable in the surrounding *Mark*, and the open group of farmsteads became a compact irregular village (called by Martiny a *Haufenwegedorf*), surrounded by hedgeless arable lands. Such villages are to be found pre-eminently in the *Börde* lands on the loess soils between Cologne and Magdeburg.[2] (Fig. 113.) On the other hand, in the northwestern lowlands, small farmers (*Kötter* or *Kötner*) (who were excluded from property rights in the *Esch*) began at an early stage to leave the village group and reclaim new fields in the marsh and heath of the surrounding *Mark*, and here they built their farms. Such compact fields are called *Kämpe* and the settlement a *Kampensiedlung*. (Fig. 23.) The process is akin to the squatter settlement which took place in the Middle Ages in England. But in northwest Germany (and northeast Holland) it commenced in the period known as the Early German Period from the fifth to the eighth centuries, and continued throughout the Middle Ages, and was resumed after the division of the common lands in the nineteenth century. Today, such *Kampen* settlements with their separate fields (*Blockflur*) surround the *Esch* nucleus, which itself consists of a few farmsteads, e.g. the Münsterland. (Fig. 23.) In some purely pastoral areas (as in the marshlands between the Ems, Jade and Weser) the nucleus has disappeared and in its place there are small hamlets of scattered farmsteads grouped around an occasional church village (*Schwarmensiedlung*).

[1] W. Müller-Wille, "Langstreifenflur und Drubbel", *Deutsches Archiv für Landes und Volksforschung*, VIII, Heft I, pp. 9–44.

[2] E. Obst and H. Spreitzer, "Wege und Ergebnisse der Flurforschung im Gebiet der Grossen Haufendörfer", *Petermanns Mitteilungen*, 1939, pp. 1–19.

The importance of the study of field systems in the understanding of rural settlement is clearly shown by a recent study of the *Gewanndörfer* of the *Börde* of Hanover.[1] Study of the field system in these villages reveals a variety of patterns that differ as to location and age. A typical village may be examined. Regular (schematic) parallel strips and regular separate fields, both under arable cultivation, occur on the outskirts of the farmed area. Here, too, occur small, irregular, separate hedged fields, usually under grass, that were apparently clearings on the edge of the forest. These two kinds of field (regular and irregular) were the most recent additions to the farm area before the consolidation of holdings took place (*Verkoppelung*) during the nineteenth century. The greater part of the farmed area consists of irregular, short, parallel strips that occur either as separate strips or in open-fields (*Gewannflur*). These strips emerged through centuries by the extension of the farmed area around the nucleus of settlement. Though irregular in comparison with the above two, they are nevertheless systematically laid out and belonged to the *Kötner*, *Brinksitzer*, as well as to the *Voll-* and *Halbbauern*. The earliest strips, dating from the early Middle Ages, are the most irregular in shape. Long narrow parallel strips (*Langstreifenflur*) make up large areas. These belong to the *Voll-* and *Halbbauern*; the *Brinksitzer* and *Kötner* are almost unrepresented, and were therefore probably not in existence when the land was originally farmed and the strips were laid out. The name *Feld* is associated with these oldest sectors and seems to be the equivalent of the *Esch*. This nucleus was the original farmland around which clustered the groups of farmsteads, each a little apart from its neighbour (*lockeres dorf*), of the original settlers (*Voll-* and *Halbbauern*). Subsequent development led to the emergence of the isolated farmstead in the *Geest*, and to the clustered *Haufendorf* in the loess lands of Niedersachsen.

A particular problem of rural settlement is that of the abandoned medieval village or *Wüstungsdorf*. The area discussed above is an excellent example of the desertion of such settlements in favour of adjacent villages, that thereby increase in size. In this study it is shown that the field systems of the larger nucleated villages were composed of several sets of strips, which formerly were independent and belonged to smaller villages, whose inhabitants later deserted them and moved into the present village.

Particular attention may be drawn to the Rhine Massif in which isolated farmstead, hamlet and village occur, with variations from district to district that are due as much to historical circumstances as to physical conditions. In the Bergisches Land (the Wuppertal district) and the west of the Westerwald, a dispersed settlement appeared in the Middle Ages

[1] *Ibid.*

as the initial settlement in forest clearings, but, through the law of divided inheritance since the later Middle Ages and the development of handicrafts, there gradually emerged small hamlets.[1] On arable soils on limestone and volcanic outcrops—as in the eastern half of the Eifel, the Sauerland and the eastern half of the Westerwald—nucleated villages again occur, and, like the villages in the loess areas of Hesse and Thuringia, they are of Early German origin. Along the valleys there are large clustered vine villages.

(*b*) *Southern Germany*. In southern Germany, villages with the place-name suffix *ingen* are especially characteristic of old Swabia and southern Baden, and *heim* occurs throughout Franconia. These are the names of the earliest villages which were founded by Alemmanic and Frankish settlers and they are to be found as in northern Germany in the forest-free arable lands. The history of medieval rural settlement, however, is markedly contrasted to that of northern Germany. Daughter settlements were established near these villages, with the same field system and communal economy as the parent villages, but the village names have suffixes such as *hausen*, *dorf*, *zimmern*. They also were established mainly in forest-free land during the Early German period, before A.D. 800. After this date there began the clearance and settlement of the forest, beginning with the vicinity of the existing villages and ending with the settlement of the wide tracts of forest under the guidance of high authority. The earliest of these hamlets have suffixes such as *bach*, *feld*, *berg*, *bronn*; others show affinities to the Church, e.g. *pfaff*, *frauen*; other names show the relation of the settlement sites to the consideration of defence by the feudal lords in the later Middle Ages, e.g. *burg*, *fels*, *eck*. The whole of this period of settlement extends from A.D. 800 to 1300.

While the *Rodungszeit* in the Northern Lowlands resulted in the clearance of marsh and forest around existing villages by the local movement of individual pioneers, in southern Germany it took the form of systematic forest clearance and the settlement of whole communities under the initiative and supervision of high authority. The great forests between the areas of first tribal settlement became imperial property and the land was granted to individual landlords. In the forest settlements, the three-field system as practised in the older villages was abandoned. Each farm had several compact fields, which were intermixed with others on a block system, but could be cultivated at the farmer's discretion; but for reasons of tradition, and to facilitate defence and communal organization, the farms were usually grouped in loose clusters to form small hamlets. Occasionally in areas with sufficiently extensive patches of arable land, hamlets subsequently grew to be compact villages. But

[1] F. Steinbach, "Beiträge zur bergischen Argrargeschichte", *Rhein Archiv* I, Bonn, 1922. Also "Gewanndorf und Einzelhof", in *Schulte-Festschrift*, 1927.

it was far more usual for the hamlet to remain intact, as in the Black Forest, but where the land was broken into scattered patches of cultivable land, or again where a pastoral economy was dominant, the hamlet gradually disintegrated, eventually to be replaced by a completely dispersed habitat. This last change has been carefully studied in the morainic lands of the Allgäu where it was facilitated from the sixteenth to the eighteenth centuries by the law of the large landowners. The process is known as *Vereinödung*.

The isolated farmstead and the hamlet are today characteristic of the eastern half of Bavaria (Upper and Lower Bavaria and the Upper Palatinate), the morainic lands of the Bavarian Plateau, the Fichtelgebirge, Frankenwald, Franconian Jura, the Keuper marl lowlands of the middle Neckar basin, the Black Forest, Vosges, Odenwald and Spessart. All these areas are still mainly forested, with isolated patches of cultivated land on flat land, in broad valley floors, river terraces, or plateau surfaces. In the Black Forest and the Vosges, the farmsteads are arranged in groups of isolated farmsteads, and one village community (*Gemeinde*) comprises several such clusters, which are strung along a road or a valley bottom, separated from each other by strips of farmland. The individual hamlets are called *Zinken*.

This mode of settlement is to be associated with the presence of numerous small patches of cultivable land, the predominance of a pastoral economy, which demanded fixity of tenure of hedged meadows, and, in certain states, with the law of undivided inheritance, which also prevented the further subdivision of single holdings. On the other hand, in the richer arable areas, the initial villages have grown in size and compactness through the addition of farmers, craftsmen and traders, particularly where the law of divided inheritance prevails. This concentration is most marked in the vine villages of the Rhine and Neckar lands.

RURAL SETTLEMENTS IN THE EAST GERMAN LANDS[1]

German settlement was effected east of the Elbe and the Weser after A.D. 1200 and the German agrarian civilization was then imposed upon the more primitive culture of the Slavs. The Slavs depended mainly on cattle-raising, fishing and hunting, with a little primitive agriculture. They practised at first a shifting cultivation and their settlements were of a temporary character. The permanent settlement consisted of a group of farmsteads, closely adjusted to the terrain, but usually clustered around an irregular open place, upon which faced the farmsteads, and from which there were only two or three exits. (Fig.

[1] R. Kötzschke and W. Ebert, *Geschichte der Ostdeutschen Kolonisation*, 1937.

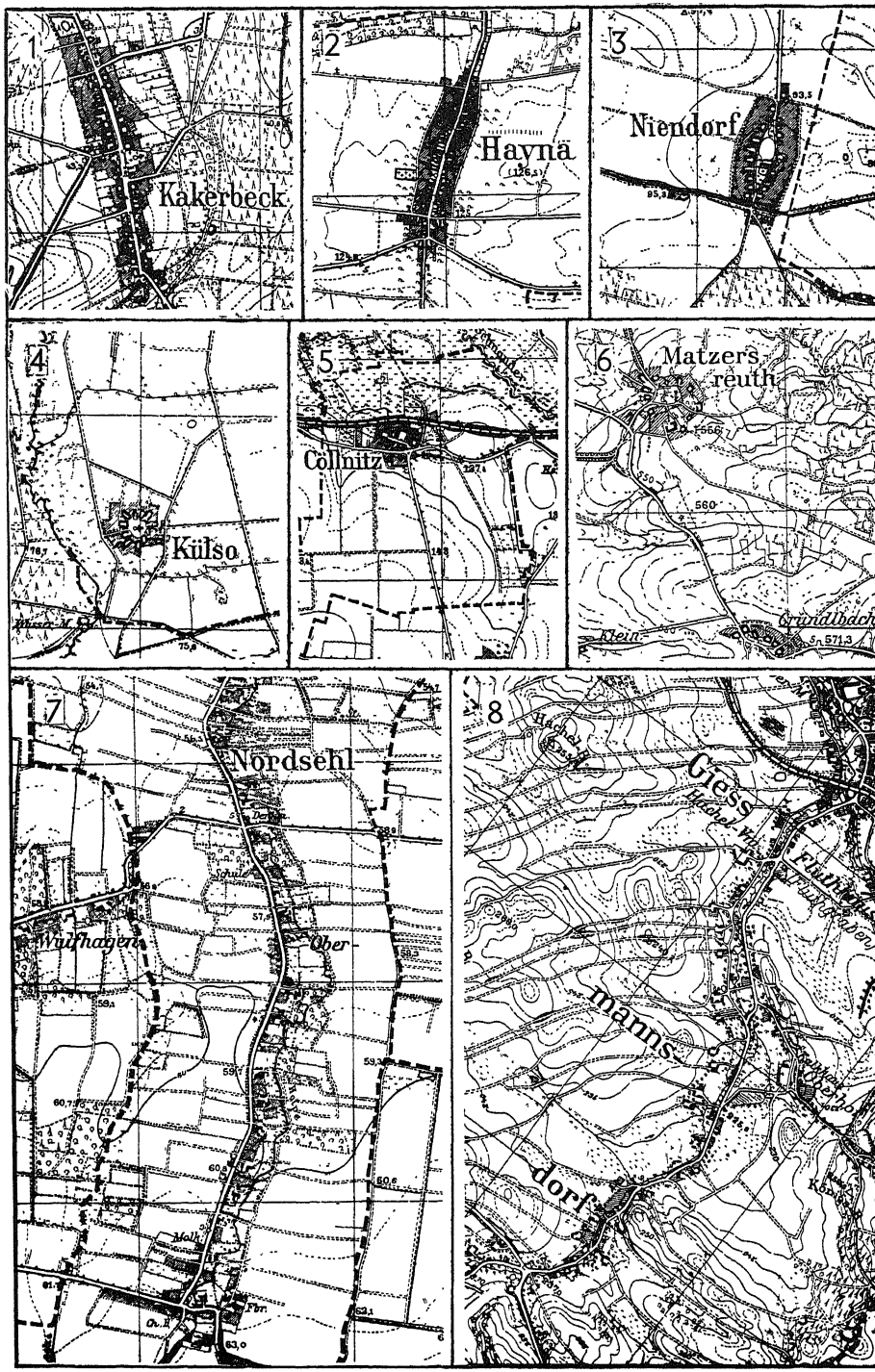


FIG. 24. VILLAGE TYPES (See p. 572.)

24.) This place was in fact an enclosure and probably served both as a defence for the folk and a refuge for their stock from man and beast. The field system was distinct from that of the German village. The arable land was divided into irregularly shaped parcels, several belonging to one peasant (*Blockflur*). The system seems to have developed by the slow accretion of cultivated parcels, and is completely contrasted to the long narrow strips of the German *Gewanndorf*. These villages were very small and the chief areas of settlement were on the loess lands and the drier diluvial platforms between the Great Valley troughs, the marsh and forest of the latter being avoided. They were sited on river banks, since the Slavs apparently did not practise the art of sinking wells to get their water. The original area of Slav settlement spread west beyond the Elbe and the Saale and, indeed, until the early Middle Ages, Slav settlement was dominant in the eastern half of south Germany, so that these small clustered hamlets are still to be found sporadically in these areas, as well as throughout the areas of German colonization.

The German colonization introduced new settlement forms into these Slav lands. Sometimes, the Slav village and its field system were left untouched (apart from the acceptance of German law), or the settlement of a few German peasants resulted in the addition of a few narrow strips to the irregular fields of the village. Frequently, the Slav field pattern was regularized and extended, and there emerged a combination of the Slav block system and the German strip system. In many cases, when new German villages were laid out, the older Slav village in the vicinity was destroyed, or gradually abandoned.

Throughout these newly settled lands there are to be found two principal German settlement forms. These are the *Gewanndorf* and the *Hufendorf*. The three-field strip system was introduced into old Slav and new German villages. While this system grew gradually in the west in each individual village, these new villages in the east were laid out systematically, and the fields (*Gewanne*) and their strips demarcated on a definite plan with a preconceived regular layout, as opposed to the piecemeal pattern of the western villages. This holds good too for the grouping of the farmsteads. The plan of the whole village was designed by a *Lokator*, who followed certain widely adopted principles of layout. The most common planned forms were the *Strassendorf* and the *Angerdorf*. (Fig. 24.) In the former, two series of farmsteads face each other in two rows on a road, which existed *before* the settlement. In

FIG. 24—VILLAGE TYPES

1. *Strassendorf*
2. Simple road village
3. *Angerdorf*
4. *Rundling*
5. *Gassendorf*
6. Hamlet with 6–9 farmsteads
7. Linear village with farms in one series
8. Forest linear village (*Waldhufendorf*)

the latter, the two rows of farms face a wide, long space running the whole length of the village in which are a common pond, the church, and often the cottages of landless labourers, and the outhouses of the farmsteads.

The second type of medieval field system and village settlement is found especially in reclaimed marshland and forest clearings, though it is not peculiar to such areas. In the forest village (*Waldhufendorf*) the farms are arranged as a series like beads on a chain, along a broad valley bottom or a route. The farm holding (*Hufe*) consists of one belt of land running back from the farm, to the limits of the village area, and includes meadow, arable and woodland. (Fig. 24.) The marsh village (*Marschhufendorf*) has a similar arrangement of both farms and holdings, except that it occurs in land which has been reclaimed by diking, and the farms line the dike or canal. A main feature of both these settlements is the systematic layout of the farms with consolidated holdings, as opposed to that of the strip system, associated with the three-field system of communal cultivation. (Fig. 24.) The marsh village is first heard of in the early twelfth century in the lower Weser, where it was established by Flemish settlers. It would seem that the forest village was developed from the layout of the marsh village. It occurs in incipient forms in the Odenwald and Spessart, but it is especially characteristic of the forested uplands east of the Saale and the Bohemian Forest. Transitional forms are to be found on the western border of the Erzgebirge and in East Prussia, and the same principle was used in the layout of villages in the north-eastern lowlands in combination with the three-field system. (Pl. 28 and Fig. 110.)

Among the diminutive villages of Slav origin much attention has been given to the *Rundling*. (Fig. 24.) This was a common form with many minor variants among the Slavs, though it was neither peculiar to them (since the same layout, in the interests of defence, is found throughout western Europe among early medieval settlements) nor was it common to all the Slavs. The form seems to have been regularized and copied as a unit planned settlement by the Germans (*Rundplatzdörfer*). As such it is frequent in Brandenburg and Styria. This planned form is clearly distinct from the simple Slav *Rundling*, differing from it in size, regularity and layout, social structure, and field system. It is probably for this reason that these village types are so common in the Slav-German border zone. (Pl. 1.) (Fig. 25, p. 145.)

Throughout the east German lands there are today remnants of the earlier Slav villages (as indicated by place names). These have under two hundred inhabitants, irregular forms, centred on a place or a cul-de-sac, and are surrounded by scattered, irregular parcels of cultivated land. In Mecklenburg and Pomerania the Slav settlements remain intact with place-name suffixes such as *itz*, *ow*, *thin*, though planned German

forms are scattered among them. Especially common in these two provinces are large landed estates (*Gutshöfe*) of early medieval origin, which often form a separate settlement, or the *Gutshöf* is surrounded by a group of labourers' cottages to form part of a larger village. These *Gutshöfe* were founded by German landowners at the invitation of the Slav rulers.

POST-MEDIEVAL RURAL SETTLEMENT FORMS

New areas to be brought under cultivation in the sixteenth to the eighteenth centuries differed in the eastern and western lands. In the eastern lands villages were founded, notably by Frederick the Great, on the floors of the Great Valleys. They have the same general plan as the marsh villages but were much more rigidly laid out. Large estates (*Güter*) were built up by the Junkers in this period east of the Elbe. In the middle Danube lands, German villages were laid out on a rectangular plan. The village had a central rectangular market place, and the fields were divided at right angles by earthen tracks, and the farmers had several scattered parcels, each directly accessible from the tracks. In the western lands, the consolidation of holdings took place in the areas particularly suited to cattle farming as in the Allgäu; and *Kampen* farmsteads continued to appear in the Northern Lowlands. Especially important were the establishment of new settlements (*Fehnkolonien*) in the fens and peat bogs of the Northern Lowlands.

At the end of the eighteenth century there came great changes in rural life and organization, which, however, were in general tardy in their legal enaction and still slower in their effect on the countryside. The consolidation of holdings (*Verkoppelung*) has not gone far, and, by and large, there has been no radical change in the strip system of the open-fields. The common lands in the northwest were divided and isolated farmsteads became even more widespread, but this did not take place in southern Germany. Much enclosure took place in the pastoral areas of the Baltic, where hedges are known as *Knicks* and the countryside a *Knicklandschaft*. (Pl. 18.)

The contrasts in the rural landscape between western and eastern Germany are accentuated by the social and economic developments of the nineteenth century. Free agriculture with enclosed fields was frequent in western Germany, but the communal village system was still dominant, although the peasants were free of many feudal dues. In eastern Germany, the growth of the large estate under the control of the large landowner or *Junker* was enhanced by the emancipation of the peasantry in 1807, since this justified the Junkers' eviction of the landless peasant, for all peasants who did not possess oxen and a share in the village fields

were evicted. In the west the peasant had more protection of his legal rights, and here too the French Code Napoleon had been introduced. The enclosure movement, that completely transformed the countryside of England and produced similar effects on Sweden and Denmark, had little effect on Germany. The rearrangement of fields was not permitted by law in the German states until the middle of the nineteenth century and after, and even then little advantage was taken of this new decree.

THE CLASSIFICATION OF RURAL SETTLEMENTS

We may now sum up the present distribution of village types according to their form and size, according to the recent work of Walther Christaller. (Fig. 25.) *Isolated farms* are dominant in northwest Germany west of the Weser, and north of a line through Düsseldorf and Paderborn together with, to the south of this line, a large area in the northeast of the Rhine Plateau east of the Rhine. They also occur in the Alps, Bavaria, central Franconia (the Keuper marl lowlands), the Black Forest and East Prussia, though in all these areas they are intermixed with small hamlets with 15–70 inhabitants each. Small villages, with 70–200 inhabitants, dominate in the Northern Lowlands between the Weser and the Oder, the eastern half of south Germany, the Alpine Foreland, and East Prussia. The normal village (called by Christaller the School Village) with 200–600 inhabitants, as the name indicates, is the normal size of the German village; it is very widespread. The large villages—the Church Village (*Kirchdorf*) with 600–1,600 inhabitants, the Market Village (*Marktdorf*) with 1,600–4,500 inhabitants, and the Urban Village, with over 4,500 inhabitants—are especially characteristic of the rich open arable lands in the Rhine lands, the lower Main and the Neckar basin, the middle Elbe as far as the Thuringian Uplands, the Erzgebirge (where they are mainly industrial settlements), and parts of the *Börde* land on the northern edge of the Central Uplands.

The full classification of the form of the existing settlements submitted by Christaller is as follows. A simplified classification is used in Fig. 25.

1. *The Irregular Clustered Village* (*Haufen-* or *Gewanndorf*).
 (*a*) In the old *Volksland* (the initial areas of German tribal settlement) of lower Saxony (Niedersachsen); the north of each of Westphalia, Hesse and Thuringia; and Schleswig-Holstein.
 (*b*) In the areas of early medieval settlement in south Germany and the Rhineland.
2. *Isolated Farmsteads* (*Einzelhöfe*) appear:
 (*a*) irregularly scattered, e.g. Münsterland;
 (*b*) in groups around a village nucleus (*Schwarmensiedlung*), e.g. Osnabrück district;
 (*c*) in linear arrangement, along routeways (*Kettendörfer*).

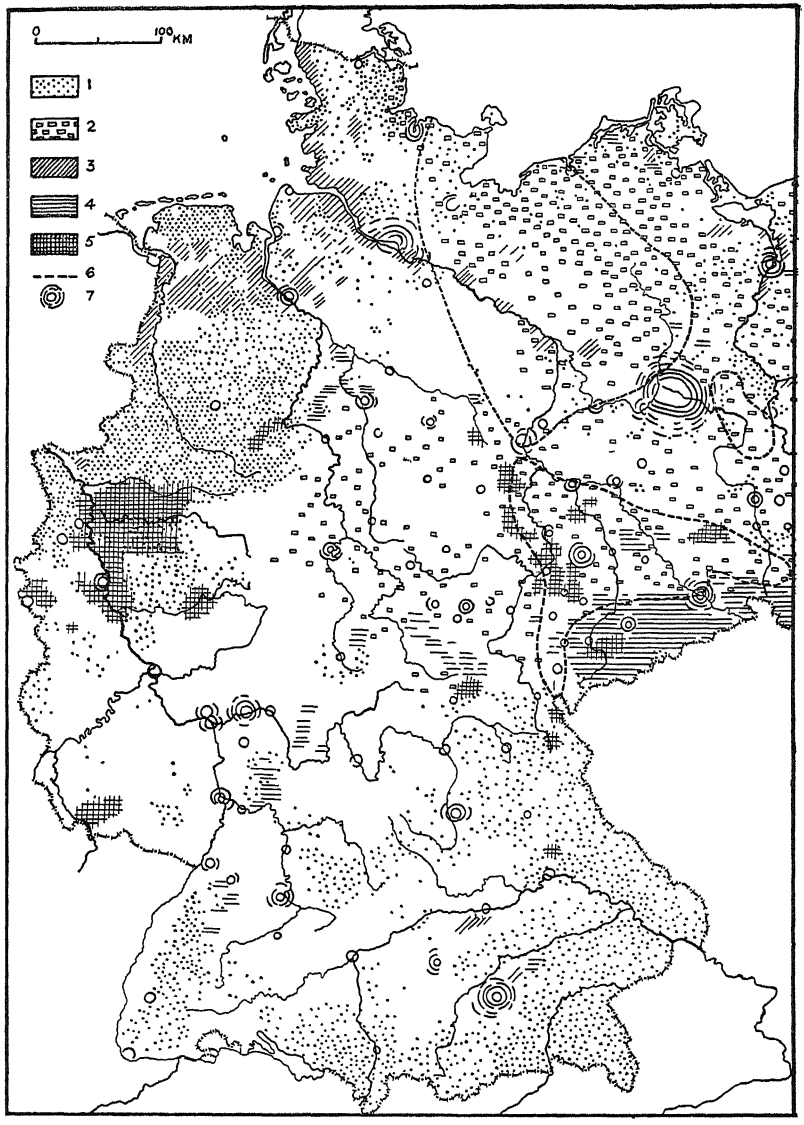


FIG. 25—GERMANY: RURAL SETTLEMENT TYPES (*after Christaller*) (scale, 1 : 6 m.)

1. Dispersed farmsteads
2. Estate farms (*Gutshöfe*)
3. Linear settlements: *Marschhufendorf* and *Moorkolonie*
4. Linear Settlements: *Waldhufendorf* and *Strassendorf*
5. Irregular settlements in industrial urban areas
6. Extent of the *Rundling* village
7. Sub-urban areas

In the unshaded areas, the irregular, compact village, with a field-strip system, is dominant (*Haufendorf*, *Gewanndorf*).

3. *Hamlets* (*Weiler*):

(*a*) founded by landlords in forest clearings in south Germany;
(*b*) grouped around large estate farms (*Gutshöfe*) as in Mecklenburg; or
(*c*) emerging through the continual subdivision of holdings (*Erbteilung*) in areas with dispersed farmsteads.

4. *Place Villages* (*Platzdörfer*) or *Rundlings*, the primitive Slav settlements of the early medieval period.

5. *Angerdörfer*, the chief village type in the east German (colonized) lands.

6. *Street Villages* (*Strassendörfer*), the name being used only for those villages which were founded on an existing route; these are widespread in the Slav lands.

7. *Linear Villages* are similar to the villages of groups 2 (*c*) and 6, but in origin are fundamentally different. They include:

(*a*) Marsh Villages (*Marschhufendörfer*);
(*b*) Forest Villages (*Waldhufendörfer*), including *Hagendörfer*;
(*c*) Fen Colonies (*Fehnkolonien*); and
(*d*) Estate Settlements (*Gutskolonien*).

8. *Estate Villages* (*Gutshöfe*), both isolated and in combination with villages as in Mecklenburg.

9. *Urban Villages*, especially mining and industrial settlements.

10. *Suburban Settlements.*

11. *Modern Industrial Settlements.*

W. Ebert, an economic historian, has classed the settlement forms, with special reference to those of eastern Germany, as follows.

Group I. Estate Settlements (*Gutssiedlungen*), that is, large estate farms, hamlets and small villages, which are mainly clusters of labourers' cottages.

Group II. Small Forms, that is, all diminutive forms with a central open place (*Gassen*, *Sackgassen*, *Weiler*, *Rundweiler*, *Rundling*). Among these there occur Estate and Dispersed Settlements where there has been consolidation of holdings (*Vereinödung*).

Group III. Fully developed, closely built-up forms (*Grossformen*). These include street villages and all kinds of place villages (*Platzdorf*). In some areas these types are mixed with dispersed farms, as in East Prussia, owing largely to consolidation of holdings.

Group IV. Linear Villages (*Gereihte Dörfer*). These fall into four types as follows:

(*a*) One- and two-sided Linear Villages.
(*b*) One- and two-sided Linear Villages after the style of the north German marsh villages, sometimes intermixed with dispersed settlements.
(*c*) One- and two-sided Forest Villages, often intermixed with dispersed settlements.
(*d*) Chain Villages (*Kettendörfer*), often intermixed with dispersed settlements.

Group V. Dispersed Settlement (*Streusiedlungen*).

Group VI. Colonial Settlements, after the style of the preceding village types.

With regard to the field systems, though the same system occurs in different village forms, compact "block" systems are associated with the *Gut* settlements; the block system, blocks mixed with strips, and the *Gewanne* system are associated with Group II; the *Gewann* system with Group III; *Hufen* holdings with Group IV; and single fields with *Einödfluren* with Group V and Group VI.

There is need for a standardization of classification and cartographic representation, to permit wider comparisons, on map scales of 1:200,000. To this end a committee under the direction of Professor R. Kötschke was established under the auspices of the *Amt für Landeskunde*, and its proposed schemes have been published by the *Amt* to serve as a common denominator in such studies, without in any way attempting to force the great variety of local variations into a stereotyped formalism.[1] It is suggested that field systems be shown in four colours and settlement forms in black. Field systems fall into four main categories, namely, *Blockflur*, *Langstreifenflur*, *Gewannflur* and *Gereihte Hufen*. These may be translated as:— compact field system, long-strip system, furlong or open-field system, and compact strip-holding. There is allowance for a number of intermediate and mixed categories, as, for example, the combination of long-strip (*Langstreifenflur*) and compact field (*Kampflur*) that is common in northwestern Germany. The *Einödflur* is shown in violet colour through the combination of the blue and red that are used for *Gereihte Flur* and the *Blockflur* respectively. The scheme is based upon the actual layout of the cultivated strips, and only in one case is a functional trait considered and separately mapped, namely, the *Gutshof*. Recent schematic forms in each of these categories (most of which have appeared since about 1700) are indicated separately.

Villages are divided into the following main categories: the *Haufendorf*, or compact irregular village; the *Weiler* or hamlet, including the *Altweiler* or *Drubbel* and the *Rodungsweiler* or *Ausbauweiler*, that is the settlement that resulted from forest clearance or the extension from a nuclear village; the *Einzelhof* or individual farmstead; the *Strassen-* or *Angerdorf*; the *Gassendorf*; the *Zeilerdorf*; the *Wegedorf*; the *Reihendorf*; *Platzdorf*; and *Gutshof*.

The rural settlements of today are clearly the product of a long process of development and change associated with changing social, economic, political and legal conditions, and beginning with very obscure origins. They differ also in accordance with physical conditions, and it is clear that their origins and development vary from one region to another. This genetic or historical approach affords a basis for the interpretation and classification of rural settlements today according to their size and

[1] A. Krenzlin, "Die Kartierung von Siedlungsformen im Deutschen Volksgebiet", *Berichte zur Deutschen Landeskunde*, 3 Band, 3/4 Heft, 1943, pp. 259–66, two maps.

grouping Such classifications, as in parallel studies of land forms, are not empirical, but are based on the selection of significant groupings viewed in the light of their origin and development. There are many such classifications, and these differ considerably one from the other. What one seeks is not an overall classification, which is quite impossible, but an appreciation, based on thorough painstaking studies of small areas, of the historical processes that have resulted in the groupings we find today. The study of settlements is approached, as the study of land forms, on the basis of structure, process and stage, recognizing that these processes, and in consequence the settlement forms, vary from one area to another.

THE FARMSTEAD

The farmstead is studied by the geographer as the nucleus of the economy practised on the farmer's holding. It consists of one or more buildings, built either as one of a group of farmsteads in a more or less compact settlement or as an isolated farmstead in the midst of, or near, its own fields. The internal structure and the mode of grouping of the buildings, in terms of the needs of the particular economies with which it is associated, are conditioned by the type of building materials available for constructional purposes in the environs, by the traditions of skilled architectural crafts through which styles are transmitted and conserved by tradition in one place and by culture contacts from one place to another. In other words, the house, be it a farmstead, a country residence, or an urban house, is a culture form with definite structural features and architectural peculiarities. But the structure of the farmstead also depends, above all, on the demands made by the kind of farming pursued by the farmer, for the farm unit is the nucleus of his economy and must conform to and be adapted to its needs. It is this characteristic of the farmstead that is of special significance to the geographer. From this point of view, the farmstead, like all other buildings, has certain main characteristics, namely, its ground plan, its roof type, its side or wall structures, its building materials, the internal structure of the building or buildings, and the way in which they are grouped together. The origins of house forms are lost in obscurity, but the permanent structures that survive today, or that formed the definite precursors of those of today, emerged after the end of the Middle Ages, especially during the fifteenth to the eighteenth centuries.

By far the most important feature of the farmstead to the geographer is the arrangement of the separate farm buildings in terms of their particular uses. Starting on this basis, geographers have classified farmsteads and examined their distribution and their relations to physical environmental conditions, to the conditions of rural economy, and to culture

contacts and culture traditions. W. Müller-Wille, a German geographer, has attempted a systematic classification of farmsteads in terms of the possible groupings of the separate buildings and their internal structure, He gives special emphasis to the relation of the dwelling, i.e., the farmhouse, to the other buildings—stalls, stables, barns, and cartsheds. Within Europe he recognizes three basic forms: the Unit Farmstead or *Einheitshof*, the Group Farmstead or *Mehr-* or *Vielbauhof*, and the Clustered Farmstead or *Sammelhof*. The Unit Farmstead has all its rooms under one roof. The Group Farmstead is a group of entirely separate buildings, with the dwelling separate from the economic buildings. The Clustered Farmstead, though often appearing to be a Unit Farmstead, actually consists of several buildings built alongside each other.

The Group Farmstead falls into two series, an irregular and a regular series. The first corresponds to the *maison en ordre lâche* of the French geographers. It was formerly very widespread, though it is limited today, in general, to northern Europe, the Alps and the Balkans. It also occurs in Germany in the Lüneburg Heath and in the lower Rhinelands. The dwelling and the stables are often combined under one roof as in western Europe, and the dwelling and the granary (*Wohnspeicher*) are combined in the farmsteads of north and east Europe, and, in modified form, in parts of the Alps.

The regular series has a variety of groupings but all the buildings are clustered around a yard (*Hofplatz*). The type with two parallel buildings is very common in Scandinavia and east Europe. It normally has a combination of dwelling and barn under one roof, with the stalls as a separate building. More commonly in western and central Europe the buildings are arranged at right angles to each other around a yard, but there is a marked distinction according to whether the buildings are actually adjacent to, or stand apart from, each other. In the latter case, the buildings are independent and neither the roofs nor the eaves are concordant. There is, however, both continuity and concordance in the former; this is what the Germans call the *Kanterhaus*. Thus, we have a possible, and an actual, variety of types built up on two, three or four sides of a central yard or enclosure.

The structurally separate buildings of the Clustered Farmstead may be grouped together in different ways. One form is the alignment of two or more buildings, either with their gable ends contiguous, or with their long eaves sides contiguous. Other groupings are the so-called T form and the cross form. Important farmsteads, such as the Frisian type, with separate sections under one roof, may be considered, according to their structure and arrangement, as either unit or clustered farmsteads.

The Unit Farmstead is fundamentally contrasted to the other two. All the rooms and the dwelling are under one and the same roof. The

single-roomed structure is the most primitive type. In fact, however, it occurs in exceptionally large and highly developed types from a constructional point of view. There are two main and quite different types. In one type the dwelling is on the ground floor with the "economic spaces" next to it, or sometimes with barns above it; while the other type has the "economic spaces" on the ground floor and the dwelling is on the upper floor, approached by a staircase. The latter, called by the French *la maison en hauteur*, is widespread in the Mediterranean lands, in southern France and in the southern Alps. In the former type, the building has one floor, and dwelling and economic rooms are adjacent. In such cases, the building may be divided transversely (at right angles to the gable) or laterally (parallel to the gable). Transverse arrangement is characteristic in north and east Europe as well as in upper Germany and in Alsace Lorraine, the last area having a very well-developed and distinctive type. It also occurs in various parts of the west of the Rhine Massif and in the Vogelsberg. The lateral arrangement often has prolongation of the roofs to form lower partitions on each side that can be used as stalls.

Most of these farmsteads did not develop fully until after the Middle Ages and their origins are obscure. But it is clear that they are at least related to the farming economy. Thus, the large unit farmstead is probably best suited to a pastoral economy, and the grouped farmstead with a central yard with an arable economy. The small unit farmstead is also very characteristic of small-holdings with a mixed economy. The storied type is characteristic of the economy that depends primarily on the vine and the orchard and has a very small amount of arable land and few, if any, cattle and a few goats and sheep and little farming apparatus. The cellar is used primarily for storage. The unit farmstead is also not unrelated to climatic conditions for it is particularly developed in northern Germany and in the Alps where much is to be gained by living under one roof during the long, cold or wet winters. But this explanation is quite inadequate. A further contributing cause lies in demographic conditions and the influence of building techniques and building materials and traditions. Thus, timber and half-timbered work would encourage the building of separate units as protection against fire, while the use of stone would encourage the clustering of buildings in more compact form. Moreover, there is the important factor of culture contacts and the transmission of ideas of building and styles. The practice of families living together, as in the Mediterranean lands, often resulted in separate dwelling units being added to a parent building, and separate quarters for the old parents had to be built.

The farmstead, then, is the individual unit of rural settlement, and its structure depends on local building supplies, rural economy, social

tradition, and culture contacts. In these respects, there are basic distinctions between the farmsteads of eastern (Slav) Europe, the German lands, and the Romance lands in France and Italy. These distinctions are most marked against the Slav and Italian culture areas. In the latter, the stone house, with flattish roof, several storeys and few windows, suited to an economy of viticulture rather than plough and stock farming, is characteristic. The Slav house, borrowed by the Magyars, is a simple single-roomed house, akin to the Russian *isba*. It is a small rectangular building, made of timber, with a straw roof and an open fireplace in the centre of the room; often the cattle are stabled in the same building, although several small buildings may form together a scattered irregular group. This is the kind of house and scattered hamlet which is found throughout the Baltic provinces and among all the Slav peoples on the German borderland.

Within the lands of German settlement, however, there are far more significant variations in the type of farmstead. (See Fig. 26.)

In the German lands the farm types developed in the Middle Ages. They appear first in the folk areas of western Germany and then some of them were transferred by the emigrant folk to the new lands of colonization where they were modified according to the nature of the farming, the available building materials, and developments of style. Three main farm types may be recognized. The Low German house (*Niederdeutsches Haus*) is found mainly in the Northern Lowlands. The Middle German house (*Mitteldeutsches Haus*) is found throughout the northern section of the Central Uplands. The Upper German house (*Oberdeutsches Haus*) is found in the south German lands. Each of these has sub-types, which have developed under special conditions.

The Low German house (Fig. 26) in its simplest and basic form is a unit structure, with a single vast steeply sloping roof, supported by two rows of timber uprights (*Ständer*) and cross-beams or stays (*Kehlbanken*). It is a *Ständerhaus*. It has no second storey. The floor is subdivided to form a great central threshing floor (*Diele*) between the uprights, beyond which, under extensions of the roof, are the stables for the cattle (*Kübbungen*), while at its far end are the living-quarters (*Kammerfach*) with a central open hearth (*Flett*). The entry to the *Diele* is by a great gateway at the gable end of the building. The introduction of the fireplace, oven and separate living-rooms were innovations of the Middle Ages and, together with adaptations to farming economy, caused modifications in this initial structure. The two main variants are the Frisian and the Saxon houses. The Frisian house is very localized on the raised mounds in the northern marshes, and is especially adapted to cattle farming. The building is centred on the *Diele*, here called the *Gulf*, and the rooms and stables are grouped all around it.

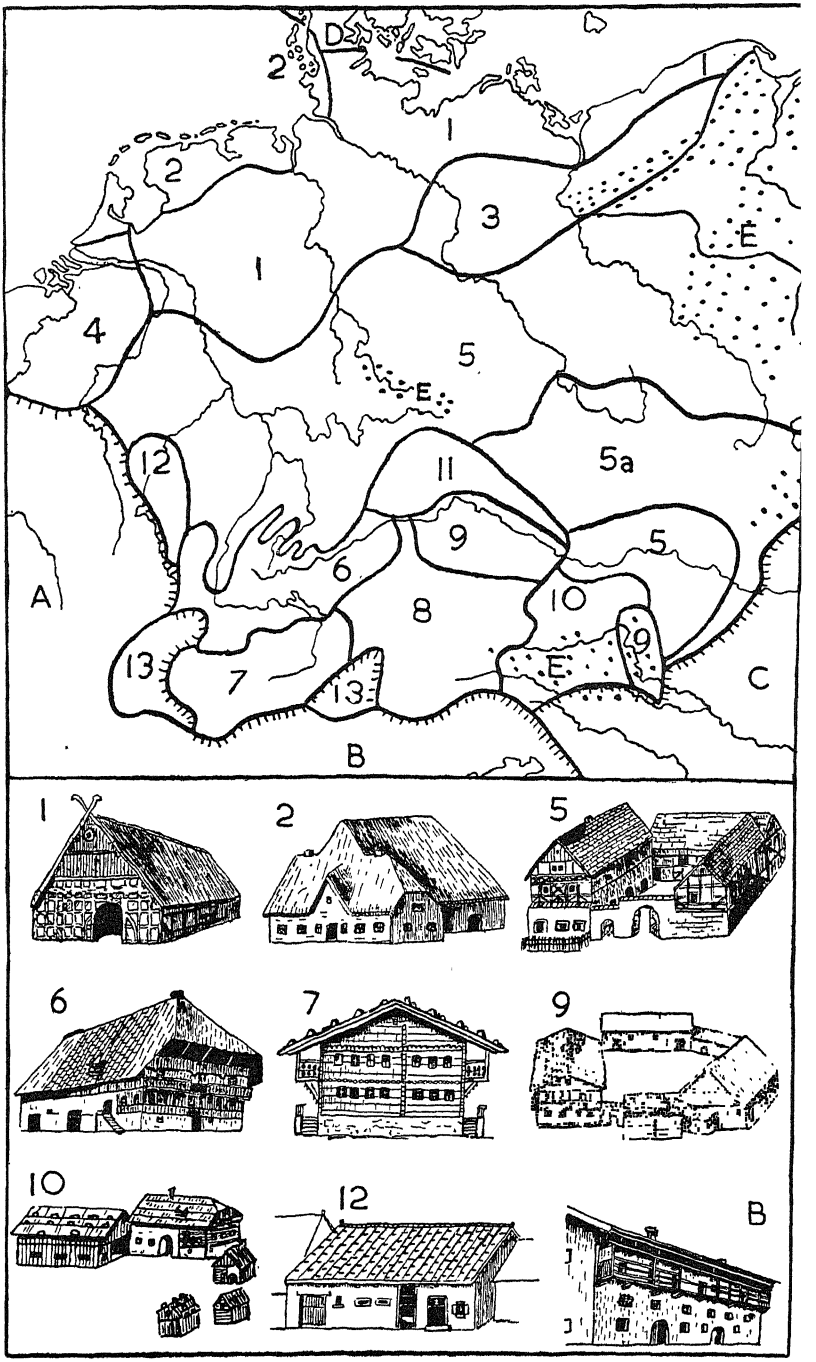


Fig. 26—FARMHOUSE TYPES

The Saxon house is characteristic of the northwestern lowland. central *Diele* is continued right through the building with stables living-quarters on either side. Outbuildings sometimes appear to local farming; for instance, there are separate barns for cattle and sh in the northern marshes and in the Lüneburg Heath. The farmstead a rafter and beam frame, originally a straw roof, and a timber framew that was later modified with the addition of brickwork. Brickwor may be noted, is especially characteristic of the Frisian farmstead. Westphalia a variant appears sharply to the south coinciding with boundary of the Low German dialect. It has its cattle stalls at the s height as the centre and the roof is carried by the *outer* uprights. similar type is the small house in the towns of Lower Saxony and W phalia, in which a large gate in the gable frontage leads to the cer space (*Diele*); this arrangement is evidently indicative of its rural or (Pl. 4).

The Middle German farmstead consists of two or more separate bu ings grouped at right angles to each other around a central rectang farmyard. It is half-timbered with lath and plaster (*Fachwerk*). steep roof is supported by uprights (*Pfetten*) against the main ridge-p in the gable and side pieces parallel to it. These uprights thus divide inner space of the building into compartments so that the large o space of the Low Saxon house is absent and the house is entered l side (not a gable-end) gateway. The house has two storeys, and the a separate kitchen with fireplace, a living-room with a warming oven, it is generally half-timbered. Thus, in origin and form, this farmstea fundamentally contrasted to the Low German type. It occurs throu out central Germany, especially in Franconia, whence its alterna name, and it has spread north into the Harz Foreland, and southeast the Neckar basin and the Rhineland. It was adopted throughout greater part of the eastern colonized lands, in the Northern Lowla the Danube lands and the foothills of the eastern Alps (Pl. 3).

FIG. 26—FARMHOUSE TYPES (*from Sydow-Wagner*)

The Low German Unit Types. 1. Saxon Farmstead. 2. Frisian Farmstead. 3. Elbian transition type. 4. Flemish farmsteads.

The Middle German Group Type (several buildings on two or more sides of a tangular yard). 5. The Frankish farmstead. 5a. Frankish farmstead in non-Ger areas.

The South German Unit Type. 6. Alemannic or Swabian farmstead. 7. Swiss f stead (*Länderhaus*). 8. Bavarian farmstead.

9. Austrian Group farmstead. 10. Austrian irregular clustered farmstead. 11. Tr tional types. 12. Lorraine stone-built unit farmstead. 13. Rhaeto-Roman stone- unit farmstead.

A. French farmstead types. B. Italian farmstead types. C. Slav-Magyar irre clustered farmsteads. D. Danish (Scandinavian) farmstead types. E. East Euro single-room house (*Vorlaubenhaus, Rauchstube*).

Below the map are diagrams of certain of the major types (*from Sydow-Wagner M discher Schul-Atlas*).

The Upper or South German types are unit farmsteads, and have developed from the basic Middle German type. They are usually divided into two groups known as the Swabian and Bavarian types. The Black Forest house, which is very characteristic of the Swabian area, has two storeys, a vast overhanging roof, covered with shingle or straw, hipped at either end, and is built partly of timber. On the ground floor are the stalls, and above are the living-quarters (with separate living-room, and a kitchen with fireplace and oven), surrounded by a balcony, and above again are the hay-lofts, which are approached by a gangway, built from the steep slope on which the house is usually built. This type occurs in northern Switzerland (*Dreisässenhaus*).

The Frisian farmstead is confined to the Frisian lands on the North Sea coastlands from southern Holland to western Schleswig-Holstein, and is especially typical of the raised mound sites (*terpen*) in the marshlands. The Saxon house is found throughout the Northern Lowlands. It extends to the Ruhr, Wupper and Eder rivers as far as the Rothargebirge; to the Harz mountains in the south; west to a line from Utrecht to Aachen in the west; and beyond the lower Elbe along the Baltic coastlands to Pomerania in the east. The Middle German or Frankish farmstead occurs throughout central Germany, especially in the lands settled by the Franks (Franconia), whence its alternative name. It has spread by contact and colonization north into the Harz Foreland, and south into the Neckar basin and the Rhine plain. With modifications it has been introduced into the colonized lands in the Northern Lowlands, the Danube lands and the eastern Alps, as far as the Bakony Wald, and it has been gradually adopted in the Czech lands of Bohemia. The Upper or South German unit farmsteads have developed from the Frankish type, as adaptations to a pastoral economy in wooded upland environments. Its main types are the Swabian or Alemannic, the Bavarian, and the Austrian types. The Black Forest house is the best-known example, and it is repeated in the farmstead of northern Switzerland (*Dreisässenhaus*). These South German farmsteads do not appear in the great area of colonization in the Northern Lowlands, since the peoples of the southwest took little part in it; moreover, these types are peculiarly adapted to a mountain pastoral economy.

These German house types, when viewed as a whole, merge east, west and south into other culture areas in which the house forms show distinct features, though everywhere the change is through areas of great intermixture. To the south the limits are most marked. Here the Italian styles consist of stone building material, the houses are storied, with an outside balcony, rather flat roofs, few and small windows, and the houses occur in compact village groups. Such types are found in southern Switzerland (Freiburg, Valois, Tessin, Engadine), the Jura, the Italian

Tyrol (midway between Trient and Bozen), and south of the Karnic Alps.

APPENDIX. Types of Rural Settlement

The following list refers to sheets of the 1:25,000 and 1:100,000 scales that illustrate the different kinds of settlement.

1:25,000:

Examples of dispersed settlements:
Streusiedlung.
Einzelhof (dispersed habitat), Bl. *Buldern*.
Weilersiedlung (hamlets), Meinerzhagen.
Gutsiedlung (estate farm), Thelkow.
Examples of nucleated settlements:
Haufendorf, Bl. Hohen Hamen.
Rundling, Luchow.
Strassendorf, Messdorf.
Angerdorf, Gross Rade.
Reihendorf, Ziegenhals.
Waldhufendorf, Königshain.
Marschhufendorf, Norden.
Moorkolonie, Papenburg.
Friderizianische Siedlung, Dechsel.

1:100,000:

Streusiedlung: 308, Bielefeld, 330 Münster-i-Westfalen, 378, Crefeld, 379 Elberfeld.
Haufendörfer: 311 Hildesheim, 356 Soest (also dispersed), 438 Erfurt.
Strassendörfer: 213 Perleberg; 248 Friedeberg, 271 Cüstrin; 367 Finsterwalde, 450 Ohlau.
Rundlinge: 187 Parchim, 213 Perleberg.
Waldhufendörfer: 371 Sprottau, 420 Görlitz, 442 Dippoldiswalde, 448 Waldenburg, 469 Annaberg.
Weiler: 534 Kemnath, 550 Sulzbach, 581 Cham.
Marschhufendörfer: 145 Stade, 175 Brake, 203 Bunde.
Wurten: 172 Emden.
Moorkolonie: 255 Laar, 204 Leer, 176 Bremervörde.
Kolonistendörfer: 75 Friedland, 104 Rossel.

CHAPTER 7

TOWN AND ROUTE

Der Charakter der Städte wechselt von Landschaft zu Landschaft. Verwandte Geschicke, verwandte Bilder.[1]—Friedrich Ratzel, 1898.

URBAN BEGINNINGS IN THE WEST GERMAN LANDS

THE MEDIEVAL town in the west German lands gradually crystallized as a distinct settlement in the early Middle Ages. In the Early German period, the functional elements which later were combined in the town were scattered over the land, and were not associated with compact or even permanent settlement. In the Carolingian period, in the Romanized Rhinelands and the upper Danube lands, and, in the tenth and eleventh centuries, beyond in Inner Germany, there appears a settlement which is distinct from the village, in its function, topography and legal constitution. This is the embryonic urban habitat, which consisted of two distinct topographic parts, the stronghold or burgh (*urbs*) and the settlement outside its defences (*suburbium*).

The stronghold was the first nucleus of settlement. It enclosed a bishop's seat, an imperial palace or a seat of seigneurial administration. The foundation of these strongholds is to be attributed to three main developments during the Merovingian and Carolingian periods. Secular administration was placed in the hands of counts, representatives of the emperors, who governed definite areas from fixed stronghold centres. The spread of Christianity was also effected and organized from bishops' sees over diocesan areas. Lastly, the invasions of the tenth and eleventh centuries led to the construction of fortifications throughout western and central Europe, both to defend these existing settlements, and to serve as new places of refuge for the folk of the countryside. These new strongholds or burghs contained permanent garrisons recruited from the knights of the *gau*, for which each was the centre. These secular and ecclesiastical areas were both adjusted to the early German *gaue*, and their centres invariably placed in or near existing strongholds of Early German and Frankish origin, which were selected from a large number of such strongholds on account of their outstanding nodality.

In the eighth century and after, the demand for luxury goods increased, and itinerant merchants, notably the Frisians in northwest Germany, began to segregate in small communities in the vicinity of these new seats

[1] The character of towns varies from one region to another. Similar functions beget similar forms.

of secular and ecclesiastical administration, where they found a permanent group of consumers, protection afforded by the stronghold, and special privileges of communal life. Foremost among these are the fifteen oldest settlements in the area of the Holy Roman Empire, the Roman settlements of Cologne, Regensburg, Mainz, Worms, Constance, Zürich, Trier, Augsburg and Basel; and the Carolingian seats of Magdeburg, Dortmund, Cambrai, Goslar, Würzburg and Bamberg. Here mercantile communities (*urbes mercatorum*) were early established, and gradually acquired a special law (*jus mercatorum*). This law served as a model for the mercantile settlements which are recorded during the period 900 to 1100, fifty of which were newly founded settlements, and seventy the confirmation of existing Carolingian markets. Most of these recorded settlements (with records of tolls, markets and coinage) are situated in northern Germany.

With their roots in the mercantile settlement (*in suburbio*) there developed the first market settlements. A clear distinction must be made between the market as an institution and as a settlement. The first involved merely the business of exchange at a fixed place; the second involved both an institution and a permanent settlement. Provision markets (*macelli publici*) were held in places of fixed settlement and temporary assembly in the Roman, Early German and Frankish periods. As statutory markets, they increased in number after 900, and were held within the strongholds, catering both to the local groups of consumers and to travelling merchants on the great trade routes. Such markets of themselves did not give rise to permanent settlement, but were incident upon it. The market settlement does not appear as a clearly defined functional, topographical and constitutional entity until the early twelfth century. It is called a *forum* and its settlers *mercatores*. It was the result of a long process of development marked by the growth of local trade, which needed weekly markets for regular exchange, the development of handicrafts, and the migration of free craftsmen from the countryside into the mercantile settlements, where they enjoyed the same privileges as the merchants and often displaced them in both number and authority. A market now signifies a *settlement*, which embraces both the market place, the appurtenances related to it and the house lots for its inhabitants. "Market place and house lots formed an inseparable entity on the land of the lord" (Hamm). The settlers were given freedom from feudal restrictions and elementary rights of self-government. Such settlements appear in the shadow of the strongholds, and were usually grafted on to the latter as separate foundations; but they were also established as separate legal and topographic entities on virgin land, independent of an existing stronghold.

The first towns (*civitates*) developed gradually from those early settle-

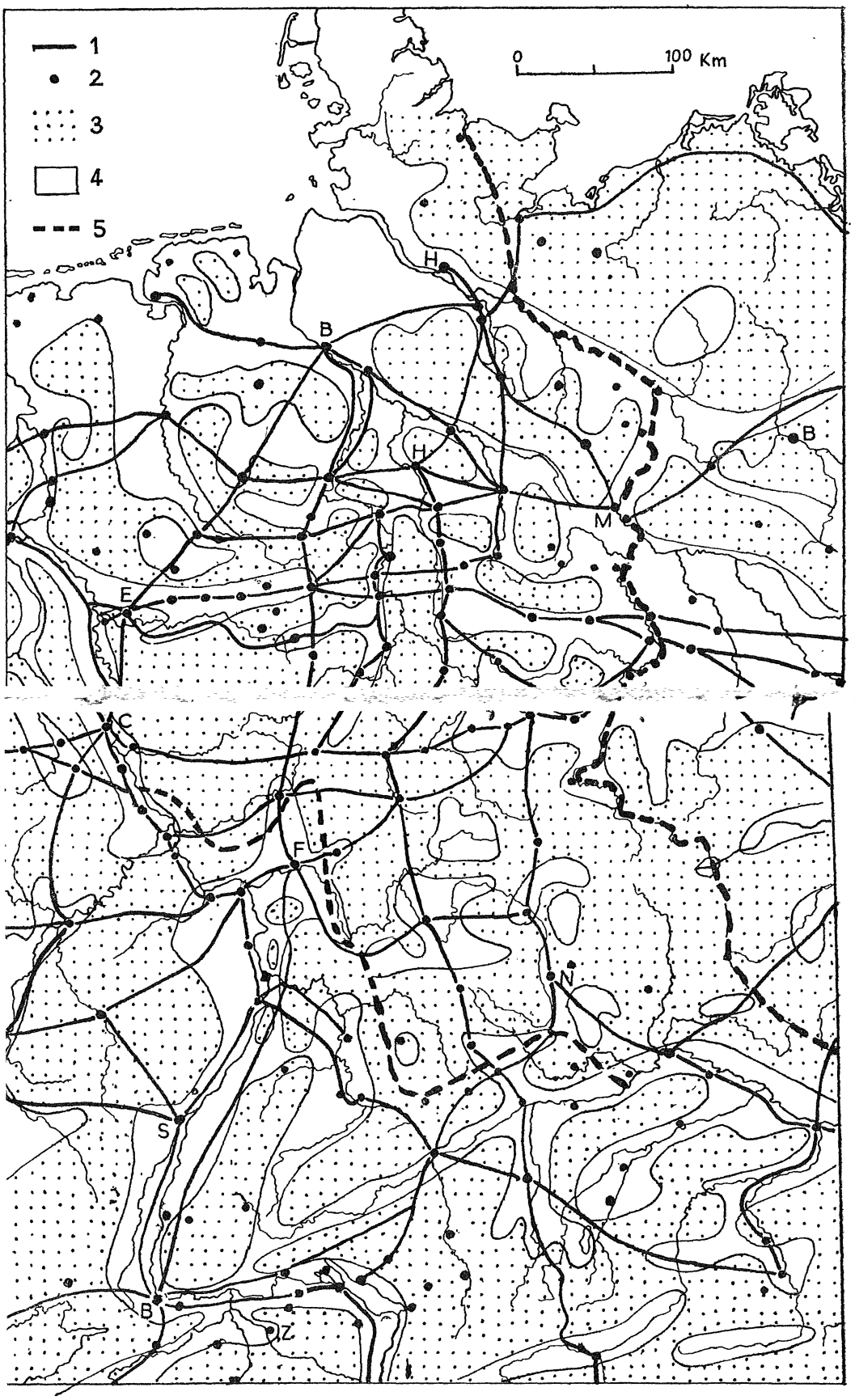


FIG. 27—GERMANY: EARLY MEDIEVAL ROUTES AND TOWNS BEFORE 1200 A.D. (*by the author*) (scale, 1 : 4 m.)

ments which had their constitutional and topographic roots in the mercantile centre *in suburbio* and their nucleus of crystallization in the stronghold. The new burgher or town communities wrested their rights from the rulers of the strongholds, the first grants of communal rights in the German lands being recorded at Cologne in 1106 and at Goslar in 1107. By the middle of the twelfth century the concept of the town (*civitas*) was fully developed, and the great era of town foundations had begun. A number appear in the latter half of the twelfth century, but the overwhelming majority of the urban settlements throughout the German lands appear during the thirteenth and fourteenth centuries.

The title of *civitas* is usually accepted as the most reliable general and all-embracing expression to designate the characteristics of the medieval town. These characteristics, which distinguished it from the contemporary village, were that it was a seat of handicrafts and trade; it was a walled fortress; and it was a jurisdictional and self-governing entity. These attributes were gained either separately, over a long period of complicated development, or together, with the grant of town law, in the case of founded settlements; while the growth of industry and trade was dependent upon the enterprise of the community in exploiting the possibilities opened up to it. Thus, full town status was not everywhere attained. "There were settlements with a thoroughly urban economy, without defences, and without corresponding legal status, and there were town strongholds without town economy. The aspect of the town also varied in different periods and regions" (Amman). Urban settlements thus show great variety from region to region in the later Middle Ages, with respect to structure, aspect, origin, growth and distribution.

In 1200 there were over 200 towns (*civitates*) in west German lands (Fig. 27). About 120 had embryonic urban character in 1100, consisting of stronghold and extramural settlement. During the twelfth century all these became *civitates*—i.e. fully-fledged towns—and there also appeared an additional seventy, most of which were new foundations. Of the urban settlements in existence in 1100, the majority had their nuclei in the fortified cathedral immunities (*Domfreiheiten*) of the bishops. All these towns were placed on main routes, conveniently accessible to the populous districts of settlements—Roman *castra* in the Rhineland (e.g. Strasbourg and Basel), Frankish *curtes* (e.g. Münster) or Saxon *oppida* (e.g. Fritzlar and Würzburg), or the new communal burghs on the eastern frontiers (e.g. Meissen). The feudal castle did not appear in Germany until the middle of the thirteenth century, in strong contrast to France, where in the ninth and tenth centuries the countryside bristled with the individual strongholds of a swarm of petty sovereigns. For, after the death of Charlemagne, local feudal lords all over France asserted their power, whereas in Germany the great dukedoms were established and

the emperors were able to control the local powers of the counts, who commanded the garrisons of communal strongholds, but were forbidden to construct walls or castles on their own account. Thus the earliest castles in Germany were imperial residences, about ten being located in the Rhinelands in the Carolingian period, and only two of these ten gave rise to towns—namely, Frankfurt and Aachen. A second group of castles was built by the Saxon emperors in the Harz region in the eleventh century (e.g. Goslar), and a third by the Hohenstaufen in Swabia in the twelfth century (e.g. Ulm). Down to 1200 only about twenty towns with such castle origins had come into existence.

During the twelfth century, towns evolved slowly through the further growth of the mercantile community, local handicrafts, and markets, near strongholds. But most outstanding in the latter half of the century is the foundation of entirely new market settlements (*fora*) by the great dynastic families, in order to foster trade. Such settlements, built on virgin land, were not parasitic on existing strongholds, and soon received the full status of a town (*civitas*). They were completely self-governing and were responsible for their own defence. The most outstanding examples are Freiburg-in-Breisgau and Lübeck.

Both the stronghold and the mercantile settlement were of necessity placed on the main routeways, especially at break of bulk points, and in places centrally situated with respect to the then peopled areas, for the functions of the merchant and the market no less than those of the Church and the lord depended upon contact both with the surrounding areas and, by main routes, with the outside world. All these factors contributed to the origin and development of the early medieval town, although it is impossible exactly to evaluate any one of them. The towns, in 1200, then, are closely related to the areas of initial German settlement on the forest-free lands, and to the great corridors of movement that traverse these zones, linking the towns with each other and with the Rhineland. A main belt of towns is located in the Romanized Rhineland and the areas flanking it in the middle Main and Neckar basins. Running from east to west through Inner Germany there are two other main zones of early settlement and eastward penetration, in which urban life had early beginnings.

The first is the great belt of forest-free land on the northern border of the Central Uplands from the Cologne Bay to Thuringia. The close route net of this belt in the late Middle Ages had its initial axis in the great Hellweg highway, built by Charlemagne, from Duisburg to Paderborn. From Paderborn, routes ran to the Weser crossings at Höxter, Hameln, Herstelle and Minden. Thence main routes ran along the Harz Foreland to the Elbe at Magdeburg, and south of the Harz via the Goldene Aue to Erfurt and Halle in Thuringia. A further route ran

from Duisburg via the Porta Westfalica to Bardowick, the precursor of Lübeck. It linked the Rhineland with the Baltic and Slav lands and interconnected the bishops' sees of the Northern Lowlands.

The second zone is marked by a group of towns in the Bavarian Plateau, together with a series along the Danube. The first group was associated with the transport of salt from the Salzach valley, and with the trans-Alpine route via the Brenner; the second with the progressive expansion of the settlement frontier down the Danube, ending with the foundation of the *civitas* of Vienna in 1107. The location of these places at break of bulk points and bridge crossings facilitated their growth during the twelfth century. Finally, frontier towns, beginning both as bishops' seats and as trading centres, were established in a series on the line of the Elbe and the Saale. All of these early medieval routes ran from east to west, and, with their western termini in the two great early medieval emporia of Mainz and Cologne, they had their eastern termini in the outposts of Christianity and trade at Bardowick, Magdeburg, Erfurt and Halle.

Between these two main zones of settlement in the north and south lay the Central Uplands and the eastern part of the Main-Neckar basin, which were as yet virtually untouched by urban development. The eastward spread of settlement in the Main-Neckar basin beyond the *limes* into the zone of forest and marsh in the Keuper marl lands was tardy, except in the loess lands of the middle Main, where Würzburg was the capital. Bamberg, an ecclesiastical focus, and Nürnberg, an imperial castle seat, achieved town status in the twelfth century, but the north–south route which linked them was not important until the later Middle Ages (after 1200), the chief early medieval route running via Ulm on the Danube down the Neckar valley, via Geislingen, to Mainz. Conspicuous is the relatively large number of towns, a total of over a hundred, in northern Germany, as compared with about seventy in the south German lands, while there is a marked paucity of towns in the Northern Lowlands, in the central forested uplands, and in Franconia east of the *limes*.

THE WEST GERMAN LANDS IN THE LATE MIDDLE AGES

At the end of the Middle Ages the total number of towns in the west German lands reached almost two thousand, while to this total a large number of market settlements must be added. By the end of the fourteenth century the network of urban settlements was virtually complete. The highest densities, reaching one town to some 100 sq. km. or less, are to be found in the Saxon Börde, the upper Rhine plain, northern Switzerland and the Neckar basin. In these areas the majority reached town

status before the end of the thirteenth century. In the Northern Lowlands and the Bavarian Plateau the market settlement outnumbers the town; there is one urban settlement (i.e. including towns and market centres) to 100 sq. km., but only one town to every 300–400 sq. km. The towns in all the wooded upland areas, as well as in the Hessian and Thuringian Corridors and in Franconia east of the *limes*, appear mainly in the fourteenth and fifteenth centuries, and followed in the wake of forest clearance, rural settlement, mining, and the construction of castles. They are usually spaced at regular intervals on the main routes, with a density of one town to about 150–250 sq. km.

We must emphasize strongly that town status could be attained only through the sanction of high authority. Towns were sited, built and given corporate character through the initiative of the territorial lord, lay or ecclesiastic. The great majority were laid out as new market settlements or as planned extensions of existing settlements; or an existing settlement, village, or market was raised to town status. A new foundation was a speculation, the motives of the founder being economic—i.e. financial gain—or political—i.e. to defend, organize and administer his territories. The lord could grant the facilities for a community to engage in crafts and trade; but he could not create these activities, which are the essence of urban life. The capacity of such a settlement to exploit the possibilities accorded to it by the lord depended on its ability to function as a seat of industry and trade. Such possibilities were afforded by overland traffic, local market trade, defence and administration.

Merchant traffic in the Middle Ages, even as early as the Carolingian period, was confined to the public highway (*via regia* or *publica*), in the interests of the regulation of traffic and the protection of the merchant by the emperors. Thus, in considering the potency of wholesale traffic in urban development, these routes alone come into question. The early medieval routes have already been noted. The route net in the later Middle Ages reveals certain features which are relevant to our theme. The east–west traffic, which dominated trade down to about 1200, was later supplemented by a development of north–south traffic, due to the development of trans-alpine trade in the south, and North Sea and Baltic trade, largely controlled by the Hanseatic League, in the north. Consequently there emerged many new routes across the Central Uplands. These formed a skein of routes across the wide Hessian Corridor, a concentration of river and land routes in the Rhine gorge, and a second skein between the Harz and the Thuringian Uplands. Thus, the Saxon Foreland became a great nexus of east–west and north–south routes. (Fig. 27.) In Westphalia, however, the narrow zone of open rolling country which lies between the Münster lowland to the north and Rhine Massif to the south was traversed by the Hellweg. This route linked up a series

of springline points on the northern edge of the chalk outcrop, where both fresh and saline water early attracted permanent settlements, which soon reached town status (Dortmund, Soest and Paderborn). This zone, however, lacks north–south routes, and its chief towns, Dortmund and Soest, lost their early pre-eminence because of their lack of nodality, and were superseded by the towns of Lower Saxony, where, in the Saxon Foreland, the east–west land routes were crossed by north–south river and land routes, which ran north to the Baltic ports. Located at river crossings in this foreland zone, towns had early origins and grew to great prosperity in the later Middle Ages.

The grant of a weekly market usually figures as one of the first privileges of such settlements, which were often established in the first place to function as market centres. In the Northern Lowlands, in particular, towns were raised from market settlements which, in their turn, had gradually grown from village origins through the grant of market rights. These places grew gradually, as early as the ninth century, as centres for the marketing of cattle and cloth from the surrounding countryside. In south Germany many towns "were situated on unimportant side routes and cannot therefore be explained in terms of long-distance wholesale traffic. We can explain their real economic basis, even for the early medieval period, only in terms of their trade with the surrounding market area" (Gradmann). Local market trade was a main factor, together with that of the thoroughfare resting-place, in the function, spacing and survival of the urban centres. But it should not be exaggerated, for there are in fact numerous towns which began as mining settlements, seats of castles, or agricultural villages, in which the weekly market for the trade of the surrounding district made a belated appearance. Moreover, even with an arbitrary market radius of five kilometres, the market areas in regions of high town density overlap greatly, as in Alsace, the Neckar lowlands, and northern Switzerland. Clearly, a variety of conditions affected both the origin and survival of the medieval town.

The chief of these governing considerations in the foundation of towns in the later Middle Ages were the functions of defence and administration. In the early thirteenth century, when the western countries were approaching political unity, Germany was plunged into feudal anarchy, from which she did not recover for two hundred years. Feudal wars and excessive territorial disintegration led to the construction of castles and towns in large numbers to serve as border fortresses on territorial frontiers, or as the administrative centres of small geographical districts within which the chaotic complexity of feudal relations was supplanted by the consolidation of legal powers (*dominium terrae*) under the control of representatives (*advocati*) of the lord. In this way many towns were founded adjacent to castles or villages, and markets were raised to town

status, to serve as centres of administration and defence. The political framework did not crystallize until the fifteenth century, and then many towns which were endowed with a planned layout, a market place, a wall and the machinery of self-government embodied in the *Rat*, could not function as effective centres of trade, besides losing their strategic *raison d'être*. These are what Gradmann has called *Verunglückte Spekulationen*, and they include many "dwarf towns" which are so typical of Württemberg.

The small territorial lords also sought to swell their revenues by granting town status to wealthy communities, especially villages of vintners, or by founding fortress towns and castles on the great trade routes in order to draw tolls from their through traffic. It is for these reasons that such a high density of towns occurs in the rich vine lands of Alsace and the Neckar basin in Swabia, where territorial disintegration after the end of the Hohenstaufen line was rife; and in the Rhine gorge and the Hessian Corridor, where the lords fought to obtain control of existing towns and establish new ones along the great overland trade routes. In the Rhine gorge the territorial lords saw in a walled town on the river front a source of potential revenue, not only from the wealth of the vintners, but also from the tolls which could be drawn from this great highway of commerce. The lure of the Rhine is evidenced by the many towns on both sides of the river, which lay in the Middle Ages within the territories of one or other of these lords, and the many toll stations designed to intercept traffic. There were in 1400 no fewer than twenty-six toll stations between Mainz and Nijmegen. To these an equal number was added after 1400.

In all these areas of territorial disintegration, the early urban settlement was primarily a fortress town, and there are virtually no unwalled market settlements. On the other hand, in the large territories, which were under one central control, there was no cut-throat competition between rival petty lords and so not the same need for strongholds. Market settlements were granted large measures of self-government, and there was no necessity to expend many years and much wealth on the construction of walls and castles. Thus, while territorial disintegration is the keynote to the foundation and close net of towns in southwest Germany, in Bavaria and the Tyrol, on the other hand, thanks to a unified political control throughout the Middle Ages, towns and castles are fewer, and the urban settlements, though placed at frequent intervals, as in the former areas, are small in size (usually under 2,000 inhabitants), and are mainly unwalled market settlements. The unwalled market is characteristic also of the Northern Lowlands, which also escaped territorial disintegration, although in both areas the small density of rural settlement and low productivity of the soil were undoubtedly contributory

factors to this mode of urban development. The main difference between these two areas is that in the north both markets and towns grew from village origins, while those of the Bavarian Plateau and the Tyrol were deliberately founded and planned settlements.

THE EASTERN LANDS OF GERMAN COLONIZATION

In the eleventh century, the Marchlands lay beyond the limits of the German dukedoms. They formed a belt which stretched from the North Sea to the Adriatic with the wedge of Bohemia in the centre. To the north lay the Billingsmark, the Nordmark, Ostmark and Thüringermark between the Elbe-Saale and the Oder-Bober rivers. To the south, including the eastern Alps and their foreland zone, lay the Ostmark, astride the route to the upper Danube land; as well as the Marchlands of Carinthia, south to the Karawanken mountains, and Carniola, between the latter and the peninsula of Istria.

In the southeast of the Reich, after the defeat of the Magyars on the Lech in 955, the Bavarians extended rapidly from their hearthland in the Bavarian Plateau, into the eastern Alps and the Danube lowlands, to the limits of the Reich. In contrast to what had happened in the northern lands, German political control and close rural settlement had already reached this limit before the trans-Elbian movement had effectively begun. Effective German conquest of the Slav tribes, and eastward migration and settlement beyond the Elbe-Saale frontier, date from the latter half of the twelfth century. This process began with the acquisition of the Altmark by Albrecht the Bear in 1134 and the foundation of Lübeck by Henry the Lion in 1158. Then there set in the great eastward movement of conquest, colonization and Christianization, under the ægis of bishop, monk, noble and trader, which continued for two hundred years. This brought into the pale of German settlement and culture an area equivalent to that of the motherland, embracing Mecklenburg, Pomerania, the lower Vistula lands and East Prussia, Saxony, Silesia, and the upland borders of Bohemia. Beyond, settlement spread into areas of alien speech and culture. The Teutonic Knights and the Hanseatic League spread German influence by crusading zeal and trade into the coastlands and the remoter interior of the Baltic provinces, from the Vistula to the Gulf of Finland. Peaceful penetration by traders, usually at the invitation of Slav rulers, resulted in a sporadic distribution of rural settlements and towns of German origin in Poland, along the Carpathian Foreland, and southwards into Bohemia and Moravia.

The beginnings of town life in these lands antedate the German colonization. From Esthonia to Burgenland communal strongholds were constructed in the early Middle Ages, as in western Europe. These

served as seats of secular and ecclesiastical administration and as places of communal refuge, containing garrisons drawn from their surrounding districts (Latin, *comites*; German, *Burgbezirke*). Many of them were on the sites of preceding Slav strongholds (*Rundwälle*). Near the stronghold there clustered, *in suburbio*, a servile peasantry and some itinerant merchants who enjoyed special privileges (*hospites*), and both were dependent on the stronghold. Here there were held periodical assemblies—usually once a year—which were called markets (*fora*, or *loca forensis*)—i.e. the market was periodic and did not imply a permanent settlement. These places were nearly always situated on the main routes at break of bulk points, notably at the crossings of rivers by main overland routes. Such river crossings first became resting-places for through merchant traffic, and, since the merchant was obliged to rest there, they gradually became seats of periodical assemblies for the sale of the merchants' goods and local produce. Many periodical markets were held on the sites of Slav strongholds and at places of pagan worship, which were subsequently selected as seats of Christian monasteries and churches, and as seats of the administrative strongholds (*Burgen*) which were erected in the eleventh and twelfth centuries. Thus, with origins reaching back into early pagan times, when places were used for periodical assembly and not necessarily for permanent settlement, the native settlement immediately preceding the advent of the German town consisted of a stronghold and *suburbium*. In origin and form, this was akin to the early settlements which preceded the spread of the town in the west German lands. Such urban origins and similar pre-German settlement-forms are to be found in Poland, Silesia, Bohemia, the middle Elbe basin, Brandenburg, the eastern Alps and the Burgenland in eastern Austria.

The German town, as a legal and topographic entity, with a planned form, such as it had developed further west, appears in these eastern lands in the thirteenth century. (Fig. 29c.) German law was granted to most of the Slav urban nuclei, often accompanied by the layout of a new adjacent settlement. But these nuclei occur in only a small proportion of all the towns which existed at the end of the Middle Ages, for the overwhelming majority were entirely new creations. Over fifteen hundred towns were established between 1200 and 1400. The process of colonization was undertaken by authorities who controlled large areas and delegated the business of laying out villages and towns, and recruiting their settlers, to experienced "planners" (Latin, *lokatore*). There was absent that feudal strife which largely conditioned the origin and development of towns further west. Consequently, the towns are more evenly distributed and wider apart (a day's journey of some six to eight hours as compared with four or five in western Germany). Moreover, there are very few unwalled market settlements. Although the town was usually

a new creation, its location was not independent of the preceding development in the lands to which it was introduced. Towns were placed near to the sites of Slav strongholds and periodical fairs. The chief lay, like the latter, at nodal points on overland routes, but the majority were small local market centres, which were often founded together with a group of villages in their vicinity.

The law of the German mother towns was granted to these colonial towns (*Kolonialstädte*) and spread in three well-defined directions, a fact which is to be associated with the place of origin of the immigrants and the direction of commercial contacts. First, the towns of the northern coastlands, from Holstein to Pomerania, and beyond in the Baltic lands, adopted Lübeck law, a distribution which is to be associated with that of the trade connections of the Hanseatic merchants, many of whom were of Lübeck origin. Second, in Bohemia-Moravia, Austria and Bavaria, the law of Nuremberg was adopted in the west, the law of Vienna in the south, and the law of Iglau and Brünn in the east. The mining settlements of the Zips region and southern Moravia developed an independent law. Third, Magdeburg law spread east of the Elbe to include northeastern Bohemia, and the northern lowlands as far as a line from Königsberg to the Carpathians. The wide distribution of Magdeburg law was facilitated by the fact that the great stream of emigration came from central Germany, and by the existence of a single great political entity, Poland, which gave to all its towns Magdeburg law or its derivatives.

The German eastward movement waned in the fourteenth and fifteenth centuries, although it was followed by a second wave of emigration in the seventeenth and eighteenth centuries, in Poland, the Danube lands and south Russia. The reasons for this decline of emigration, as too of German cultural influence, in the later Middle Ages, is to be associated with the devastation caused by the Black Death in the middle of the fourteenth century, which decimated the supply of potential emigrants. Further, German influence in eastern Europe was offset by the great national awakenings—the heyday of Polish and Lithuanian power, the Hussite movement in Bohemia, and the revival of Hungary. As regards the Baltic region, the Teutonic Knights were defeated by the Polish-Lithuanian power in 1410. After 1370 (the date of the treaty of Stralsund, signed after the defeat of Denmark) the Hanseatic League controlled the Baltic Sea and a far-flung series of trading stations reaching as far as southern Scandinavia (e.g. Stockholm and Oslo) and Russia. But its power waned towards the end of the fifteenth century, owing to complicated circumstances, which must be studied elsewhere.

Thus, the spread of the German town as a distinct settlement and legal entity had virtually run its course by the end of the Middle Ages. The

far-flung extent of German culture contacts in central Europe and west Russia diminished in the following centuries. Many new towns were founded independently in these countries. But German town law and many German communities remained from the Gulf of Finland to the Danube, while, particularly in the latter area, German colonization was renewed with the settlement of the steppes in the eighteenth century.

THE RENAISSANCE AND BAROQUE TOWN (*c.* 1500–1800)

It has been calculated that at the end of the Middle Ages the population of the Holy Roman Empire was about 12 millions, of whom some 10–15 per cent lived in towns. There were not far short of 3,000 towns in the Reich, and 12–15 of these had over 10,000 inhabitants. Six, according to Sanders,[1] exceeded 20,000, and only Cologne and Lübeck had more than 30,000 inhabitants. From 15 to 20 had between 2,000 and 10,000 inhabitants, and about 150 from 1,000 to 2,000 inhabitants. The remainder, some 2,800, had between 100 and 1,000 inhabitants, and 2,500 had less than 500 inhabitants.[2] Thus, again, in the words of Schmoller, "One can perhaps say that the increase from A.D. 500 to 1340 of two- or threefold to 12 millions was a greater achievement than the increase from 15 millions to 64 millions from 1700 to 1900".

Stagnation set in towards the end of the Middle Ages, and especially after the ravages of the Black Death in 1348, from which it took centuries to recover. Added to this there was the incredible number of deaths in Germany resulting from the Thirty Years' War, so that the towns often had fewer inhabitants in the eighteenth century than three hundred years earlier. Almost all German towns increased till the thirteenth–fourteenth century; then came a rapid decrease, often caused by the oppression of a territorial lord, and then in the eighteenth century another period of growth. This is clearly revealed in the population curves of such cities as Cologne, Soest, Worms, Basel and Mainz.[3]

During the sixteenth, seventeenth and eighteenth centuries, there occurred important changes in the character and distribution of industry which were not without effect on the location and growth of towns. Industry in the Middle Ages was almost exclusively concentrated in the towns and controlled by their guilds. Every town had a variety of handi-

[1] P. Sanders, *Geschichte des deutschen Städtewesens, Bonner Staatswissenschaftliche Untersuchungen*, Heft 6, 1922.

[2] H. Bechtel, *Wirtschaftsstil des Deutschen Spätmittelalters: Der Ausdruck der Lebensform in Wirtschaft, Gesellschaft und Kunst von 1350 biz zum 1500*. Munich and Leipzig, 1930, p. 31 *et seq.* At the end of the Middle Ages Cologne had about 30,000–35,000 inhabitants; Strasbourg, Nuremberg and Ulm about 20,000 each; Ausburg and Hamburg about 18,000, Basel 9,000, Leipzig 4,000, and Dresden 3,000. Lübeck reached 22,000 in 1400, while Frankfurt and Zurich had about 10,000 inhabitants. See B. Heil, *Die Deutschen Städte und Bürger im Mittelalter, Aus Natur und Geisteswelt*, No. 43, Berlin, 1921.

[3] Article by K. Frenzel, in *Die Stadtlandschaften der Erde*, ed. by S. Passarge, 1930.

crafts, which of necessity, owing to the lack of transport facilities, catered primarily for the folk in the surrounding countryside. The large cities alone were seats of specialized industry. Western Europe was traversed in the later Middle Ages by numerous routes which were great arteries of commerce and on which towns were located where materials were collected from, and goods distributed to, distant markets. Already, however, certain minerals and sand (for glass-making) were worked where these materials were obtained, far from the towns, in remote upland districts, which would otherwise have been shunned by settlers who sought to live from the soil. Glass-making, metal-working (gold, silver, copper and tin), and porcelain-making were especially important in the uplands of Germany. All these required charcoal as fuel and running water, in addition to their particular raw materials. This brought about a considerable dispersion of industry. This trend applied also to the textile industries. Everywhere freedom from the restrictions imposed by the guilds was sought. This general development was found in the German states, as well as in Flanders and France. In Prussia, the heyday of mining in the uplands came in the fifteenth and sixteenth centuries, and the Erzgebirge, the high uplands of Saxony, is the only area in western Europe where a considerable number of new towns were founded in this period. But the subsequent decline of metal-working released a large labour supply that could not possibly eke out an existence from the impoverished soil of small-holdings at high altitudes. The kings of Prussia encouraged the development in these areas of the textile industries as a domestic occupation, and this was organized by merchants (*Verleger*) from town centres. Much the same development took place in the states of southern Germany behind the shelter of their tariff walls. Thus, there was a widespread distribution of rural industry in France, the Low Countries and the German lands at the opening of the nineteenth century, and this added to the importance of the town as a commercial centre.

THE GERMAN CONURBATIONS

The phenomenal growth of modern urbanism in Germany, as in the rest of western Europe, resulted in the concentration of population in a relatively few agglomerations, which were normally existing and flourishing historic centres, that were able to grow further by reason of their momentum and the favourable conditions of their location, or, more rarely, entirely new agglomerations that emerged through the exploitation of local raw materials. Mushroom industrial towns of the latter character on the Continent, however, usually had their nuclei in a historic town, as Essen, Duisburg, and Dortmund, in the Ruhr. There

are, however, entirely new urban areas between these nuclei in such coal-mining districts as the northern border of the Ruhr and in Silesia. British nineteenth-century growth, as is well known, often centred on small market-crafts towns, of no historic significance, such as Manchester and Birmingham, and numerous new mining settlements appeared on the coal-fields. This entirely new growth is less common on the Continent, and it is far more usual for the new growth to be concentrated around the largest of the historic cities.

A further point is that the growth did not effectively take hold on the Continent, as we have seen in Ch. 5, until the last decades of the century and, in consequence, presents marked contrasts to British urbanism. The development of industry, commerce, administration, and service demanded growth around the historic centres and the transformation of these centres. Such changes have taken place there mainly since 1850, and in the last fifty years at an accelerated pace. The great majority of small towns with a few thousand inhabitants have changed in their social and economic structure, but in build they retain their historic traits and have changed little in size.

There were fifty-eight agglomerations with over 100,000 people in Germany in 1933, with an aggregate of 24 million inhabitants. If we exclude Berlin with 4,664,000 people, there are six others that clearly emerge as much larger than the next largest; and they have 750,000 to 1,000,000 people. These are Hamburg, Cologne, Dresden, Münich, Leipzig and Frankfurt. None of the Ruhr cities come into this group, though Essen comes next on the list. But if we group the Ruhr towns from Duisburg to Dortmund on the list with their intermediate areas, the Ruhr, which is one continuous urban complex, had at this date a population of 3,250,000. A German worker, K. Olbricht,[1] has calculated the size of these agglomerations and examined their growth. All of the central compact area of the cities increased in aggregate by 5·1 per cent for the period 1910 to 1925. But their outer suburban fringes (outside their administrative boundaries) increased by 10·4 per cent. Indeed if we add an additional million persons who lived in suburban areas, which however lie *inside* the city boundaries (since these have often been greatly extended in Germany in the last fifty years), these two together (termed the outer and inner rings) had nearly 5,000,000 inhabitants and increased by 15·5 per cent. These figures are old, but none the less meaningful.

The German town, with a few exceptions, reached its maximum population in the seventeenth century, before the Thirty Years' War. It was confined within its medieval fortifications, and although during the ensuing centuries many new buildings appeared, the general aspect and

[1] K. Olbricht, "Die Entwicklung der deutschen Grossstädte," *Geographischer Anzeiger*, XXXV, pp. 247–52.

extent of the town remained the same till late in the nineteenth century. Cities which, in the last three centuries, did record an increase in population and in their built-up area, were notably the royal residential cities such as Berlin, Dresden, Munich, Kassel, Hanover, Stuttgart, Karlsruhe, Düsseldorf; the North Sea ports—Hamburg and Bremen; and the growing industrial centres of Elberfeld-Barmen and Krefeld.

Population of 58 *German Conurbations (in thousands) in* 1933 (from K. Olbricht, "Die Entwicklung der deutschen Grossstädte" in *Geographischer Anzeiger*, XXXV, 1934, pp. 247–52)

Berlin	4,664	Gelsenkirchen	385	Lübeck	152
Hamburg	1,667	Magdeburg	371	Erfurt	152
Cologne	920	Stettin	344	*Hindenburg	151
Dresden	891	Oberhausen	325	Solingen	140
Munich	822	Königsberg	316	Zwickau	139
Leipzig	812	Bochum	314	Bonn	136
Frankfurt	812	Halle	241	Münster	131
Essen	655	Kiel	232	*Gleiwitz	126
Breslau	643	Gladbach	204	Darmstadt	118
Duisburg	581	Kassel	202	Plauen	114
Düsseldorf	573	Aachen	194	Waldenburg	111
Stuttgart	556	Augsburg	192	Koblenz	110
Dortmund	541	Krefeld	188	Wurzburg	110
Mannheim	535	Karlsruhe	187	*Beuthen	107
Nürnburg	520	Hagen	177	Heidelberg	106
Chemnitz	469	Wiesbaden	160	Freiburg	104
Bremen	461	Mainz	158	Wesermünde	103
Hanover	460	Brunswick	157	Hamm	103
Wuppertal	408	Bielfeld	153	Osnabrück	101
				Remscheid	101

*Upper Silesia Coal and Industrial Area: German section (Beuthen, Hindenburg and Gleiwitz) about 400,000; Polish section (Krolewska Huta 80,000, Sosnowiec 109,000 and Katowice 127,000) about 400,000–500,000, giving a grand total for these towns and the intervening small coal-mining communities of about one million.

The Machine Age commenced in the middle of the nineteenth century, but it was not till after 1870 that industrialization and the concentration of workers' homes near mines and factories really began. With the advent of the electrical tramway in 1881 and the development of rapid local transport after 1900, concentration in city centres gave way more and more to decentralization. New settlements have grown on the outskirts of the cities both as industrial settlements, grouped around large new factories, and as residential centres, serving as homes for workers in the city centres. Much of this expansion took place beyond the administrative limits of the city, though the new settlements were functionally a

part of it. This led to the expansion of the administrative areas of the great cities. The urban area is ever expanding around the city towards the limits of its influence which, according to the same German writer, may be taken as forty kilometres—the distance, which can be covered by road or stopping-train in one hour from the city centre. Thus, many parts of the rural-urban fringe lie within, or have been incorporated in, the boundaries of the central city, but often the urban-rural fringe extends well beyond these limits.

FUNCTIONAL TYPES OF TOWN

We have devoted a volume to the question of the functions and geographic distribution of urban settlements, and in that book have drawn heavily on German examples.[1] It is not necessary therefore to discuss this matter at length here, although the general principles should be recalled. The pattern of urban settlements came into being in the Middle Ages and that pattern and the social and economic structure of the individual settlements persisted in the overwhelming majority of cases with little fundamental change until the middle of the nineteenth century. This we have stressed several times. The main changes in the period for 1500 to 1850 were in the growth of a few ports and of the capital cities, capitals, that is, of both the large states, of the small states and, in lesser degree, of the smaller political divisions within the state. This pattern of historic urban centres is shown in Fig. 27 for southern Germany. The places shown are towns defined as on a legal basis, since this is the most satisfactory method of selecting the urban centres that cover these lands. The roads are the medieval highways which largely conditioned the scope for growth, if not the origins, of the towns. The circumstances of their origin and development have already been examined.

The main changes in the growth and functions of these centres came in the period of greatest population increase from 1870 to 1910. It is of significance, of course, that the urban settlements of southern Germany are pre-eminently commercial centres although industry is always present and of varying importance. There are relatively few places that have grown up in the modern period as entirely new industrial settlements. If we look at Germany as a whole it will be found that the settlements of this kind, or those that have become dominantly industrial in the modern period, are mainly situated in northern Germany, in the country that stretches from the lower Rhinelands to the middle Elbe basin.

Various attempts have been made to classify urban settlements on the basis of their functions and we have given particular attention elsewhere

[1] *City, Region and Regionalism*, 1947.

to the role of the local and regional service as a factor of urban growth, as well as that of specialized or primary functions, whether industrial, administrative, commercial or recreational. The centralized services have been examined with particular reference to German towns by several investigators over the last fifty years. Christaller's hierarchy of urban centres, based on the importance of their centralized services, includes the market town, the *Amtsort*, the *Kreisstadt*, the *Bezirksstadt*, the *Gaustadt*, the *Provinzstadt*, the *Landstadt*, and the *Reichstadt*. Christaller shows the classification and distribution of the modern urban centres in south Germany and their theoretical spheres of influence.[1] Compare this map with that of the historic towns and routeways of the same area in Fig. 28. It will at once be apparent that the historic factor, and particularly the conditions of medieval origin and development, are of fundamental importance in explaining many features of the present pattern, since very few new centres have appeared in the modern period, although many of them have changed in status.

An economic statistician, O. Schlier, has attempted a similar classification of urban centres for Germany as a whole in terms of the importance of their local and regional services. His conclusions may be briefly summarized with advantage as a supplement to the more theoretical approach of Walter Christaller.[2]

The smallest type of central place (*Zentralort*) appears in the country market town (*Marktflecken*). This has a weekly market, is visited by the people from the surrounding villages, hamlets and farms, has a chemist and a large shop, perhaps also a weekly paper, which is read in the district; and the daily life of a number of places around depends on it for their daily needs. A centre of higher order, in whose sphere of influence fall several market towns, is the smaller *Landstadt*, in which there is normally included a *Mittelschule* and an *Amtsgericht*. Above the *Landstadt* is the *Kreisstadt*, which appears in various grades, according to the presence (in addition to the *Landratsamt* and *Amtsgericht*) of other services of both a public and a private character, whose functions affect both the town and the area around it. To the *Kreisstädte* are to be added the larger towns of various grades, up to the large trade centres and the Reich capitals. The essential trait of a central place is then, in this general sense, dependent on the presence of institutions whose competence extends beyond the confines of the town itself outwards to affect the daily life of the environs. To these institutions in the political sphere are to be added administrative functions (with clearly defined areas of competence), and, in the economic field, for example, wholesale trade, and in the

[1] Christaller's map is reproduced in *City, Region, and Regionalism*, on p. 56.

[2] Otto Schlier, "Die Zentralen Orte des Deutschen Reichs, ein statistischer Beitrag zum Städteproblem," *Zeitschrift der Gesellschaft für Erkunde zu Berlin*, 1937, p. 161.

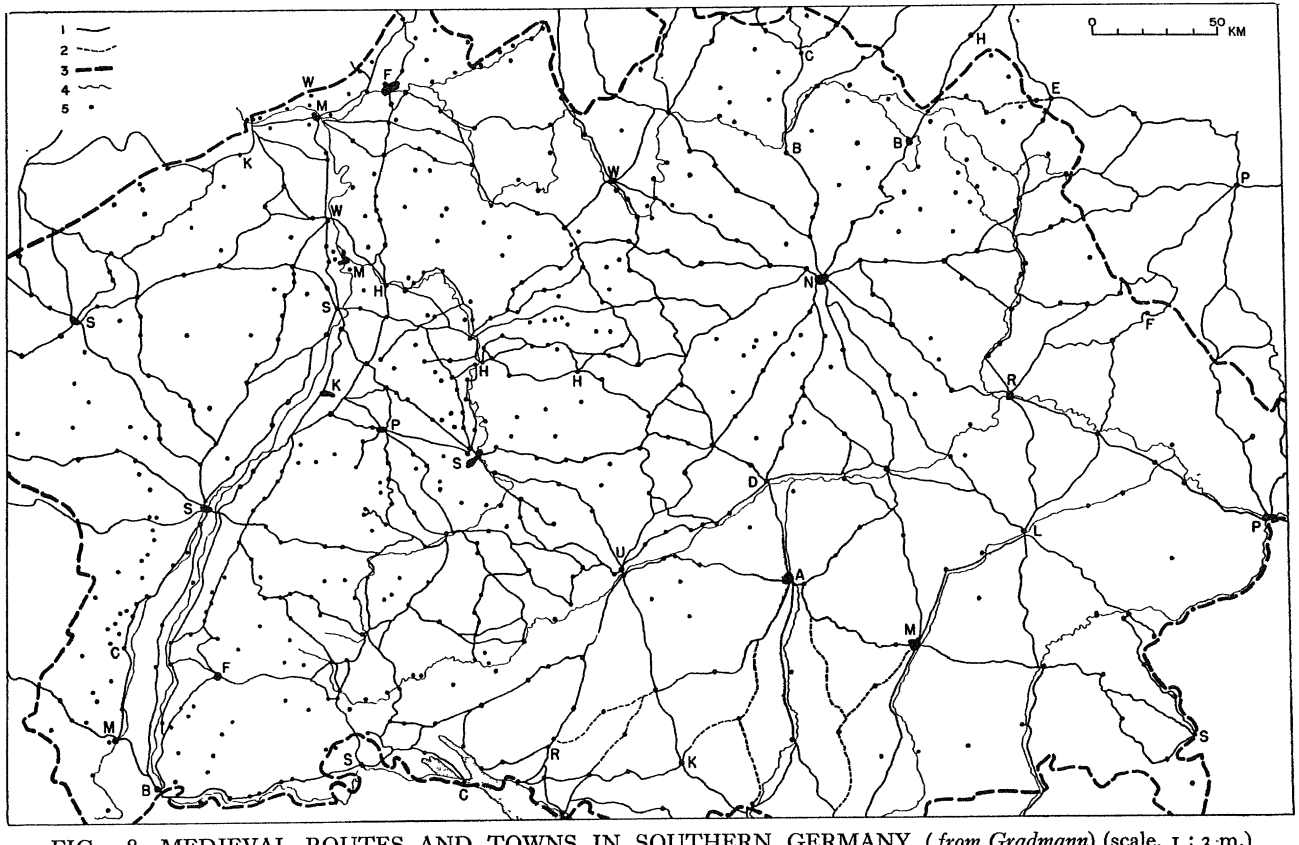


FIG. 28—MEDIEVAL ROUTES AND TOWNS IN SOUTHERN GERMANY (*from Gradmann*) (scale, 1 : 3 m.)
1. Medieval roads 2. Medieval roads (probable) 3. Boundary of Area 4. Rivers 5. Towns

cultural field, central and high school and universities, theatres, newspapers and similar institutions, that serve the cultural needs of a more or less wide area. The central places were determined by Schlier on the basis of a selected list of persons engaged in occupations which can be classed as definitely centralized services in Germany. These places are shown in Fig. 50 (p. 281).

THE URBAN SITE AND PLAN

The Urban Plan. The plan of the medieval town was closely adjusted to the topography of its site. Particularly was this the case when a settlement evolved slowly. The town invariably lay on land free from flooding or above marsh level, for the great majority of towns lay on the banks of a river. Walls were adjusted to the relief, being sometimes built along the edges of the steep slopes of a hill or promontory, sometimes ringing in land that was slightly raised above marsh or flood level, sometimes confined to one easy exit from a promontory formed by a deeply entrenched meander (Fig. 29c). Streets were adjusted to the relief, and were articulated along the most gradual slopes (along the contours) so as to ensure the greatest ease of buildings and movement. But the plan of the medieval town—that is, the articulation of its streets, and the siting of its public buildings and monuments—was also adjusted to the direction and position of its main routes, its main central market place, or its initial nucleus—cathedral, abbey or stronghold. Growth from such a nucleus may have proceeded by gradual development from house to house along existing trackways, or by planned extension along streets that, at any rate in part at the centre, were laid down in advance with the blocks subdivided into building lots. The main routes, however, formed the skeleton of the plan, and these, often of ancient date, once fixed by a river crossing or by a particular adjustment to local topography—following a ridge of higher land or avoiding a marsh—became axes of growth for the expanding town. Such adjustments are especially clear in the small town.

The planned town began as a settlement with elementary urban privileges, but if it was an active centre or one in which the founder took a particular interest, it soon acquired full town status. The planned settlement may have been confined to the market and one or two streets or blocks, growth from this nucleus proceeding more gradually. In many cases it did not grow at all, and the amorphous plan we see today is evidence of an enterprise that misfired. In the case of settlements that were laid out in their entirety, as in the towns of eastern Germany, the whole street plan and the enclosing wall were demarcated at the outset. But the nucleus in which the first buildings were erected lay around the market place, and growth took place outwards towards the walls.

The kind of site selected for the establishment of an urban settlement, or on which such a settlement gradually evolved, has depended throughout history on the primary functions of the settlement. From this point of view, these functions may be regarded as politico-cultural and economic. The religious institution or the stronghold seeks the prominent hill site or the raised hill or promontory, surrounded by sea, river or marsh, which dominates the surrounding countryside and has natural defences. The economic community needs contact with the main routes, and space in which its habitat may expand, and favours sites that are on lower-lying, flatter land, situated where overland routeways converge. Gently sloping ground at a crossing over a navigable waterway is a particularly favoured urban site in western Europe. These two primary functions, one on a hilltop, the other below it in a valley, are often eventually combined to form one settlement. Such was the case in the older Greek city, in which the town is clustered on the slopes of the Acropolis (in the Greek colonial city both were combined in the town walls on a sea-promontory). This growth is commonly represented in western Europe by the cathedral or secular stronghold—or both—situated on a hill or raised ground, and the newer nascent, urban community, that lies at its feet on the lower ground in contact with the routeways. Thus, in France, we have the *Haute-Ville* and *Basse-Ville*, and in Germany the *Bergstadt* or *Talstadt*, or *Oberstadt* and *Unterstadt*. In the later Middle Ages it is represented by the feudal castle situated on an isolated site with good natural defences. The fully grown, independent urban community, instead of being dependent on the stronghold, took care of its own defence and erected and maintained its own walls; in smaller towns this was often the task of the lord or his local representative. In the modern era, since the sixteenth century, with the exception of those places that are situated at important strategic situations, the surrounding wall is no longer necessary and military protection is the duty of the State. Even in the Middle Ages the existence of a strong State control or of geographical isolation likewise made it unnecessary to build walls round urban settlements, or the walls in existence early fell into decay. This was the case in England, and on the Continent there are areas, such as Bavaria and the Tyrol, in which urban settlements were granted the elementary privileges of self-government and were not walled; in other words, they remained unwalled market settlements.

The Site. There are certain kinds of sites that are repetitive among the numerous small towns that cover the countryside. These repetitive groups are clearly related to the general physical character of the land. As far as the larger modern towns are concerned, it is the site of the historic core within the initial town walls with which we are concerned.

Sites were chosen in reference to routes and frontiers, and the immediate topography of the site was selected according to the facilities it offered for natural defence or contact with natural routes and for obtaining from well or spring an adequate water supply.

The following is a classification of the sites of the historic towns. It is adapted from that submitted by W. Geisler in *Die Deutsche Stadt*. It is not to be regarded as a series of pigeon-holes into which every town site can be neatly placed, but a general indication of the way in which town sites are related to each other and differentiated from village sites.

Level Sites (*Flächenlage*). This is flat land without any breaks in local relief.

(*a*) *The Plain Site* is level terrain. Such town sites occur in the heath, peat and marsh lands of northwest Germany; in clearings in the forested valleys of eastern Germany; in the lowland bays, around Leipzig, Münster and in the Rhine Rift valley.

(*b*) *The Plateau Site* occurs on mature plateau surfaces, such as the high-level plateaus of central Germany—the Harz, the Thuringian uplands, the Erzgebirge.

Hill Sites include all those sites which are raised above the level of surrounding land. The majority are to be found in central and southern Germany. They are very rare in the northwestern lowlands—a notable exception being Lüneburg, whose castle nucleus is perched on a chalk outcrop—but occur occasionally in the hummocky relief of the Baltic morainic uplands.

(*a*) *Hill Slope Site* is the most frequent, and is sometimes associated with a medieval castle perched upon a hill-top. Defence against man and floods were the conditioning factors in the choice of this site. It is frequent in southern Germany.

(*b*) *Hilltop Sites* are numerous and are associated *par excellence* with the site of both the medieval castle and the walled town. This kind of site includes both the castle and the town on the hill-top and is quite distinct from the hill slope site. It also is frequent in southern Germany.

Depression Sites (*Tiefenlage*) embrace those sites which consist of a definite hollow, in which the town is placed. These depressions differ in size and depth, and this is the basis of their subdivision. This was one of the most favoured sites in the Middle Ages, for it afforded not only shelter from cold winds, and a fresh water supply, but, as has been stressed by Gradmann in his studies of south German towns, had the advantage of a downhill journey for a loaded cart going to the town market, i.e. this site afforded a convenient market location.

(*a*) *The Nest Site* (*Nestlage*), so designated many years ago by Schlüter in his study of northeast Thuringia, where it is particularly frequent, is most common in areas of moderate relief, and is typically formed by the convergence of two river valleys. It is frequent in the Erzgebirge and the Harz Foreland, e.g. Halberstadt; and between the Harz and the Thuringian uplands. In the Münster Bay, the Haarstrang and the Hellweg, which areas are characterized by pervious rocks, often with a drift cover, and an undulating topography, the Nest Site is very common, the depression being

some 50 to 100 feet deep, and reaching down either to a stream bed or to a spring line. Such sites are found along the Westphalian Hellweg, as for example at Soest.

(*b*) *The Re-entrant Site* (*Nischenlage*) is intermediate between the former and the Trough Site. The town is closed in on three sides, and has a free exit only at one point, e.g. a short side tributary, or a re-entrant opening on to a lowland. It occurs in the same kind of country as the Nest Site, and there are many good examples in the Rhine Massif.

(*c*) *The Trough Site* (*Muldenlage*) is a bowl-shaped depression, which occurs in hilly country. The town is enclosed by concave slopes with the town actually sited on flat land; it is often surrounded by hills, which are separated by cols. This site was especially favoured by the medieval town on account of its shelter.

(*d*) *The Cauldron Site* (*Kessellage*) is a still deeper trough form, and the surrounding hills are higher and the slopes still steeper; it is thus completely cut off from lower land. This is a very unfavourable site for a town, because of its lack of natural nodality. Yet several big towns have such a site, e.g. Stuttgart. In the Sudetes there are many small tectonic troughs with such town sites, e.g. Görlitz and Waldenburg.

Valley Sites. While villages are more frequently placed in relation to water supply, shelter, and contiguity to the village fields, towns occur more frequently in relation to rivers. The town sought proximity to the route, by the navigable river or along its valley, and river crossing points, by ford, ferry or bridge. The valley sites are especially typical of the northern part of France and the lowlands of England. But this classification cannot be consistent if it is now based on function, e.g. ford, pass, bridge-head, etc. It must adhere strictly to the idea of the conformation of the terrain. Sites in this class lie at natural river crossings, where roads converge, and raised land above the lands liable to flood along the river plain.

(1) *Long Valley Sites* (*Längslage*) include all those sites which are found along the floor of a narrow valley floor. They are extremely common, particularly owing to their relation to the valley routes. They may be grouped according to the form of the valleys.

(*a*) *The Valley Route Site* (*Talstrassenlage*) reflects a simple relation to the course of the river. It occurs in long narrow valleys, as in the German uplands, and in rejuvenated plateaus. Many long "forest" villages, which have become towns, have this form. It is also found in the towns of the Rhine gorge, e.g. Boppard.

(*b*) *The Valley Floor Site* occurs in valleys with broad flat floors. It is found in the north German glaciated troughs and the Bavarian Plateau, and some of the towns of the Rhine Rift on the Rhine and its tributaries. It appears on the Rhine at Cologne, Düsseldorf, Duisburg and Ruhrort. Lower down the river, the sites resemble the glacial trough sites, noted below.

(*c*) *The Step Site* is marked by a steep bluff overlooking the river. This is usually an old river terrace, though it may be formed by a break of slope due to a change in geological outcrop. It offered both a good strategic

position and it is also near to a river crossing, which was well adapted to the construction of a bridge. (The term Terrace Site is not used, since this is reserved for a later category.) Good examples are the *Altstadt* of Kassel, sited on a limestone platform, overlooking the Fulda, and Naumburg, sited on a terrace some twenty metres above the great expanse of valley flats of the river Saale. The site, indeed, is common to many of the towns which were established on the west bank of the Elbe and the Saale as outposts of trade and Christianity against the Slavs; for they enjoyed the dual advantage of good trade connections across the river and a site with good natural defences and a wide view to the east, over the surrounding country, e.g. Magdeburg, Meissen, Naumburg.

(*c*) *Transverse Valley Site* (*Querlage*) is formed by a topographic irregularity or a tributary valley transverse to the lie of the main valley. It includes the *Valley Fork Site*, in which the town spreads to cover the floor of the two valleys, in a V-shape (not within the confluence). It is common to many towns in the Black Forest.

(*d*) *The Valley Exit Site* (*Talausganglage*) is formed where a valley opens on to a lowland, the border of the lowland running athwart the valley. The type is characteristic of residual ridges of the middle Weser country, of the borders of the Harz, e.g. Goslar, and especially at the edges of the Rhine Rift valley, at the foot of the Vosges and Black Forest, e.g. Heidelberg.

(*e*) *River Meander Sites* fall into three groups, in each of which the prime cause in the selection of the site for a town was the supreme advantage of a good natural defence, which was considered in preference to the advantage the route connections of river or roadside location.

(2) *The River Loop Site* is surrounded by water on three sides, and has only one direct land connection, across the head of the loop. The latter may be commanded by a castle. This site embraces all grades of terrain from the broad meander, with gently rising ground, to the deeply entrenched meander. Classic examples are Berne and Freiburg in Switzerland.

(3) *The Spur Site* has gently rising ground between two converging rivers, e.g. Passau and Koblenz.

(4) *The River Island Site* occurs either in nature or through the construction of a channel by man so as to complete a natural girdle. Such terrain occurs only in lowlands with rivers which are both graded with wide meanders. It is frequent among early towns, since it offered direct contact to main trade routes, especially river crossings, but could also be relatively easily strongly defended. It occurs along the Hellweg river crossings in lower Saxony, e.g. Brunswick, Hanover *Neustadt*, and in some of the Baltic coastal towns, as at Lübeck, and in water-girt islands in the wide valley troughs of eastern Germany, as at Posen and Breslau.

Lake Sites. These sites are most commonly found where lakes are most frequent, namely in the glaciated areas of northeastern Germany, east of the Elbe, and in the Bavarian Plateau. Such sites afforded good natural defences, often level land in closely undulating country, and a food supply in the form of fish from the lake. But such sites are usually cut from contact with the old roads and

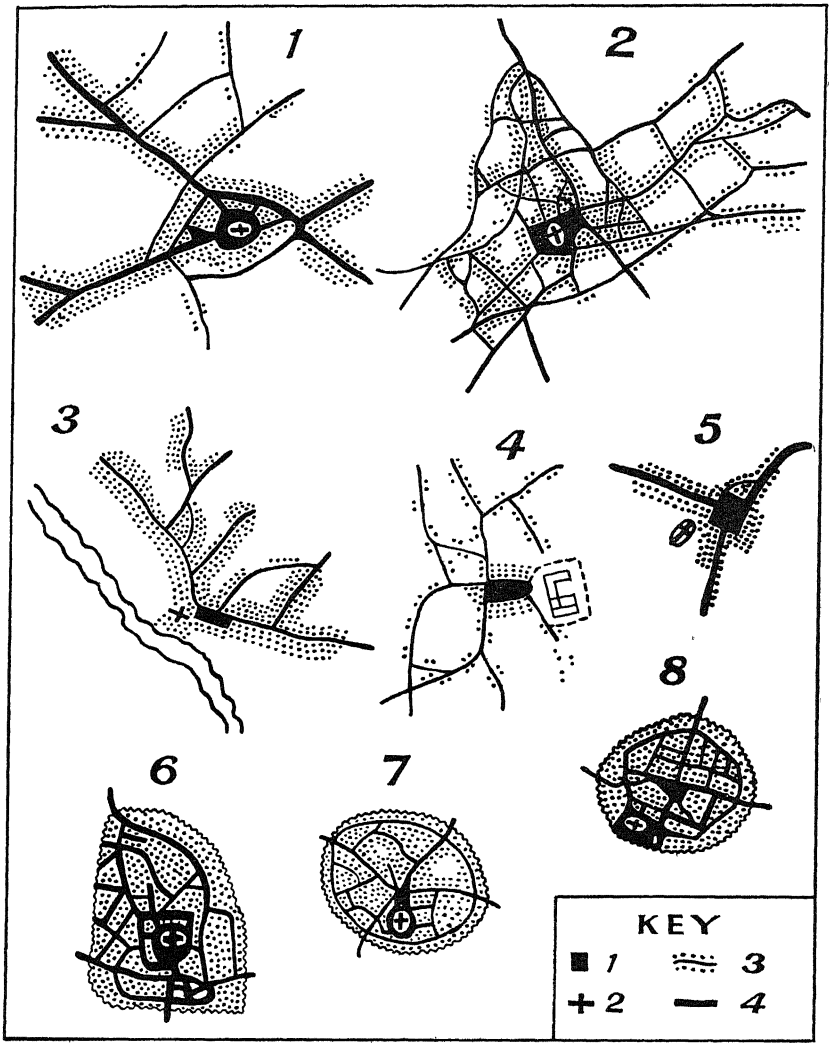


FIG. 29A—THE PLAN OF THE MEDIEVAL GERMAN TOWN. I: RADIAL PLANS (*from Martiny*)

1. Market place
2. Church
3. Buildings on the street plan
4. Main roads

For further details see text on p. 182.

the modern railway, and many towns have stagnated economically, though they retain intact their medieval aspect. The lakes and streams were not used for navigation. The lakes are shallow and often bordered by swamp, and are being rapidly silted. According to their position on the lake, these may be classed as Shore and Peninsula Sites.

Coastal Sites. This group is relatively unimportant and does not include many towns. Many places which were medieval ports have already been noted, since other site factors were far more decisive in siting than position on an open sea front. "All towns have sea sites which receive a definite character with respect to their build and aspect through their location on the sea" (Geisler, *Die deutsche Stadt*, p. 407). This definition greatly reduces the range and number of towns with such sites. Open sites are those in which the towns lie on a smooth coastline along the sea front. Owing to their lack of natural nodality they are very few in number. River-mouth sites occur occasionally in medieval towns, notably on the coast of Pomerania, e.g. Swinemünde. Medieval towns engaged in seaborne trade sought bridge-heads, well up the navigable rivers, so as to be as near as possible to the land routes of the interior, and their actual sites fall into one of the above categories.

TYPES OF HISTORIC TOWN

Types of town may be recognized according to the arrangement of streets, market place, open spaces, house lots and public buildings. Moreover, in accordance with their plan and build towns fall into families with marked affinities that vary from one part of the country to another. There are two general modes of urban growth: one is a radial growth from an oval-shaped nucleus, that normally began as a secular or ecclesiastical stronghold; and the other is linear growth from one or more route axes. Such growth may be either the result of slow unplanned growth or of deliberate planning by some high authority.[1]

The oval nucleus with a market place outside it and a radial arrangement of streets is found in many of the oldest towns, especially those that began as defended bishops' seats. It is also found in other towns of later date that began as fortresses and outside which the urban settlement later grew *in suburbio*. Radial plans are shown in Fig. 29A. The small country town or *Flecken* often grew gradually from an irregular village nucleus (*Haufendorf*). This form is frequent in northwest Germany. Church and castle are, however, more important as nuclei of growth, appearing in the plan as an irregular oval-shaped nucleus (Fig. 1, St. Tönitz, near Krefeld). In unplanned towns, the market place is first held on the street or near the church (as in Fig. 1) and the market place is enlarged at a later date (Fig. 2, Meldorf in Dithmarsch). A planned elongated market place is established as a development from the simple street market at an early date in many settlements alongside the side and main route (Fig. 3, Kettwig on the Ruhr). Figs. 4 and 5 are small planned towns, the first (Ebersberg, near Munich) being characteristic of old Bavaria, the last (Hartenstein in the Erzgebirge) of northeast Germany. Fig. 6 (Dambach in Alsace) is a rare type that evolves through the gradual

[1] See the author's *The West European City*, 1951.

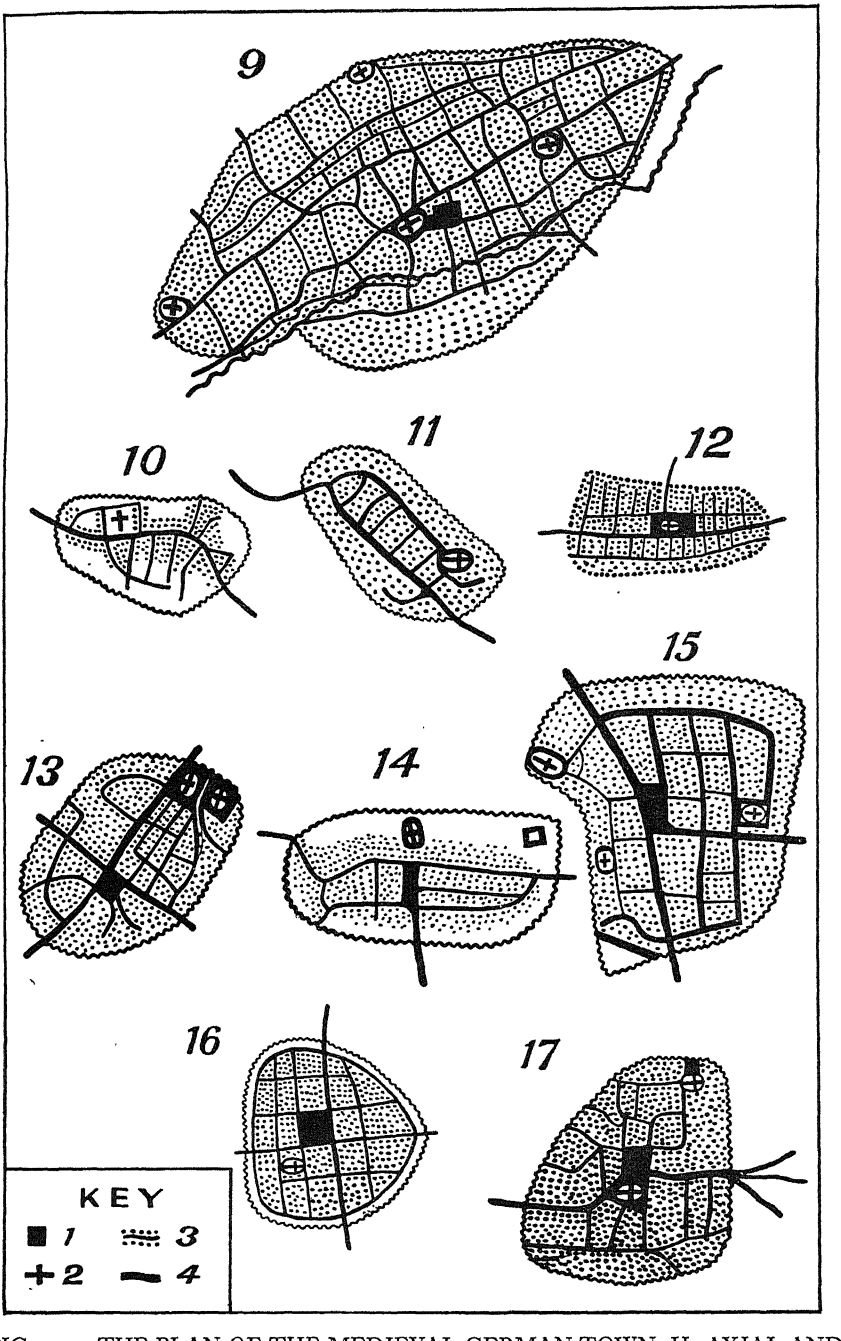


FIG. 29B—THE PLAN OF THE MEDIEVAL GERMAN TOWN. II: AXIAL AND GRID PLANS (*from Martiny*)

1. Market place 2. Buildings on streets 3. Church 4. Main roads

For further details see text on p. 184.

transformation of a *Haufendorf*; it is fairly common in the Rhinelands. Fig. 7 (Haltern) has an irregular radial plan of natural growth and is markedly contrasted to the regular radial plan of Iserlohn (Fig. 8). Haltern grew from an old church centre in the Münsterland and the church is the centre of the plan with the market place next to it; this is the prototype of the cathedral stronghold such as is found at Münster, Halberstadt, Paderborn, etc. Iserlohn has grown by rectilinear extension from its intersecting route axes.

The second main group are the towns that have a central route as the main axis of their growth. (Fig. 29B.) Fig. 10 is the simplest type, in which one highway and narrow side streets form a rib plan (Kienzheim near Kaisersberg). Further growth from such a nucleus necessarily results in the development of right-angled and parallel streets, as at Goslar (Fig. 9). Regular arrangement of streets on this plan indicates a planned form as at Fig. 11 (Mühldorf on the Inn), characteristic of many towns in Bavaria, and Fig. 12 (Heidelberg), a rib plan with a rectangular market place alongside the central axis. The intersection of two rib plans is found at Isny (Fig. 13), a type that is common and peculiar to south-west Germany (see Rottweil, Fig. 29C, and Ochsenfurt, Pl. 9) The parallel street plan has several wide, parallel main streets and narrow interconnecting streets at right angles to these, and buildings *front* on the parallel axes. The market place may lie along and parallel to the main axis (*Längsmarkt*) as at Leipzig (Fig. 15) or be at right angles to the main axis (*Quermarkt*) as at Stadthagen (Fig. 14). An approximate grid plan may develop by natural growth in this way. The grid plan proper, however, is a planned form with a combination of rectangular blocks intersecting streets of equal width and a central squrae market place (*Zentralmarktanlage*). Such a rigid plan is found at Koslin (Fig. 16), a type (*Kolonialstadt*) that occurs over large areas of the colonized lands of eastern Germany, Poland and Bohemia. The layout of such a plan may be crudely arranged; or it may not have extended beyond a few blocks and a market place; or it may have been adjusted to existing elements and to the walls. Thus, at Naumburg (Fig. 17), on the west bank of the Elbe, the crude grid plan of the town proper lies between, and is adjusted to, a through east–west route and the cathedral stronghold. Such growth was common to many of the old towns along the frontier zone of the Elbe.

In the Baroque period, relatively few towns were founded but they were deliberately planned according to principles which are well known from contemporary records. The town was usually erected as a fortress or a residence and there is a regular geometric layout of streets focused on a residence or military focus and in relation to the bastioned fortifications. Neustrelitz (Fig. 29C) is such a town. The best known are Mann-

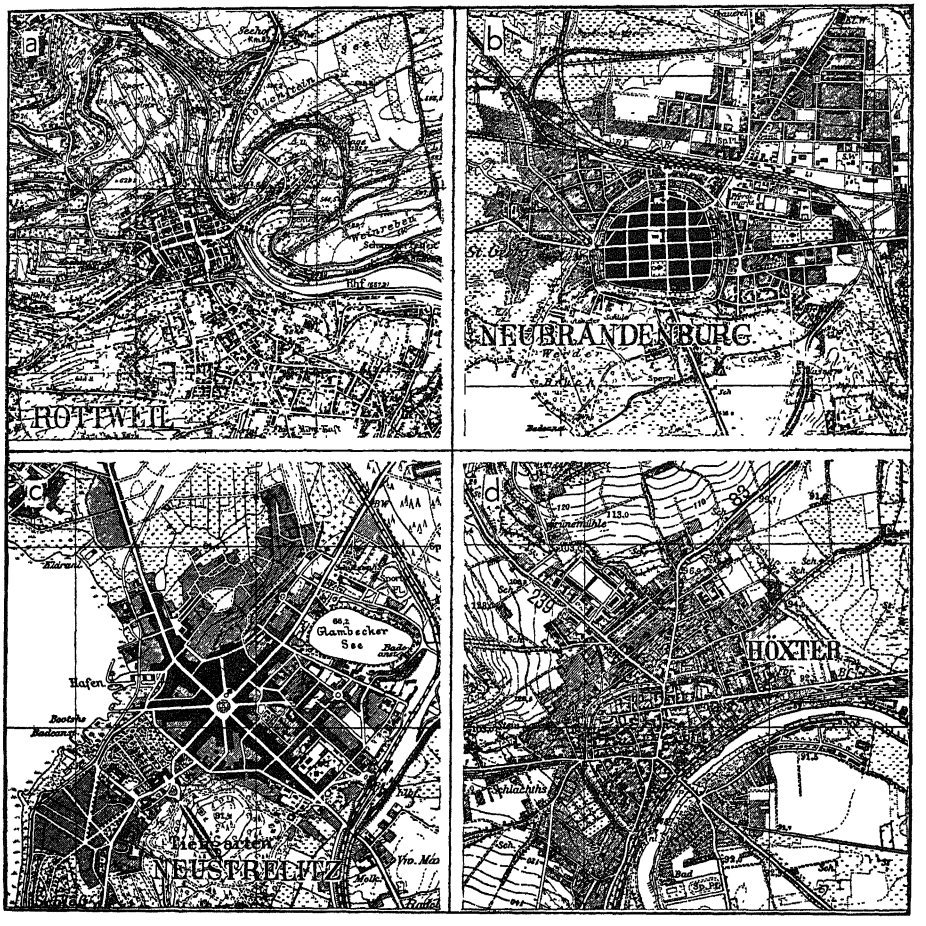


FIG. 29c—TOWN TYPES

(*a*) ROTTWEIL in Württemberg. Founded town with intersecting axes and quadrangular wall. The old town (*Altstadt*) lies to the S.E. Common planned form in South Germany.

(*b*) NEUBRANDENBURG in Mecklenburg. Founded town with grid plan and circular fortifications. Latter replaced by boulevard with modern extensions beyond them.

(*c*) NEUSTRELITZ in Mecklenburg. Typical 17th-century Baroque foundation, with radial lay-out and central rectangular market place.

(*d*) HÖXTER on the Weser in North Rhine Westphalia. Irregular plan through unplanned growth from a *Haufendorf* nucleus.

heim (rectilinear) and Karlsruhe (radial from a royal residence), but there are numerous lesser-known cases, planned as new towns or as extensions of old ones—Bonn, Erlangen, Glückstadt and Saarlouis are examples. The majority of the houses in the historic town also date from this period.

Four small-town types are shown on Fig. 29c. See also Pls. 9 and 10.

THE PHASES OF MORPHOLOGICAL GROWTH OF THE MODERN TOWN

The expansion of the German, as of the west European town in general, is divisible into several phases. The first was marked by the appearance of the town as a compact settlement unit with its focus in church or market and its limits in the wall. On the Continent, the wall was an almost invariable accompaniment of the town, whether large or small. The larger town grew by stages, and the last walls in fortress cities were the bastioned structures that appeared in the sixteenth and seventeenth centuries after the changes in siege warfare introduced by gunpowder and artillery. Towns seldom reached these walls, and there was little growth beyond them except outside the gates on the main road. After the great devastations of the Black Death in the fourteenth century the population of most towns remained stationary for several centuries. The changes they experienced were mainly of an architectural kind—new public buildings, embellishments of the old, the construction of domestic buildings, and in particular the erection of mansions for city burghers and landed gentry, both in the town and on its immediate outskirts, both inside and just outside the walls. A good many towns were extended as the seats of the heads of small states in Germany, and such deliberate extensions were usually marked by a grid plan grouped around the royal residence. Other towns were established as fortress centres, and still others as mining centres, as in Erzgebirge: but these were new towns, and, like the medieval towns, they served as the cores of crystallization for the subsequent growth.

The third phase of urban expansion is associated with the Industrial, or Modern Machine Era. It is marked by the greatest increases in population the Western world has experienced, and above all by the great concentration of people in urban agglomerations. In this process of growth during the nineteenth century certain events were of decisive importance. An early phase of growth was caused by the advent of the steam-engine, followed shortly afterwards by steam-driven machinery. This brought into being the steam-driven factory, which appeared on the Continent at various dates during the first decades of the nineteenth century, though very slowly and on a small scale as compared with Britain. The new factories were normally outgrowths from old water-driven factories and grew up on the same sites. They were on low flat

land, usually near a river, and almost always in or next to the built-up area, usually within the town walls. New factories grew out of old; they expanded, and workers' homes had to be built next to them. The spread of the urban areas in Germany in this phase was slow, as is evidenced by the relatively slow increase of town populations down to 1850.

A later, and the principal, phase of growth is introduced by the advent of the railway, which marked the first real onset of urban growth and expansion on the Continent. There was a rapid concentration of people in the towns. These could only expand along the railway routes. But such linear expansion was not in fact very marked, since there were only two or three railways, except in the largest cities. There was, in fact, during this period, no rapid local and universal transport within the urban areas. The horse-drawn tram did not appear till about the middle 'sixties and the 'seventies, and even then its rate of progress was not much quicker than a walking pace. Consequently, the new urban areas were necessarily compact, and builders sought to erect houses as close as possible to the existing town and its factories, and with the highest possible density.

During this period on the Continent the walls became a serious barrier to expansion and traffic. They were demolished, and their place was taken by great wide circular boulevards lined with public buildings. These boulevards are not merely streets. They are avenues with vistas of great buildings and social promenades for the people, an invaluable asset to urban life in which the British city is almost entirely lacking. Some great new thoroughfares were cut through the old city of Paris by Haussmann in the 'fifties. The same idea of wide thoroughfares and circular belts inspired the city planners of the last decades of the nineteenth century, as is evident in Cologne (Fig. 75, p. 471), Vienna and Budapest, to name but three. Unfortunately no attention whatever was paid to the control of housing, and the private speculator, conforming to the existing street plan and the demands of local by-laws, was able to build vast tenements in the building blocks, housing as many people as possible in congested barrack-like flats.

The next phase begins towards the end of the century, but it is short, and ceases in effect with the First World War. It was marked by several changes which permitted the wider expansion of the urban area, and by the imposition of new building regulations brought about better housing. The electric tramway enabled the city to extend. Regulations forbidding the entire building-up of blocks with tenements, and the spread of better housing ideals, notably the "garden-city" conception, resulted in some better-class housing. But this phase was short and the built-up areas dating from it are much smaller in extent than those of the first or the third periods.

The final phase is the post-1919 period, which is marked by the advent

of the motor-car, the motor-bus and the surface or underground electric railway to the means of urban transport. It saw the advent of electricity and the growth of a range of new light industries. It is an era of outward movement of persons from the city to new homes in the outskirts, and of industry to more spacious and cheaper factory sites. All these traits had appeared before the war of 1914, but they were combined after 1919 with the tremendous demand for new houses, to bring about the definite "explosion" of the city and its wide geographical expansion, and the formation of a city business core (German, *Citybildung*).

It will then be apparent that every large German city reveals a crust-like growth from its centre in which, in its topographic and architectural formation, four phases can easily be recognized. These are, the medieval nucleus within the final walls, the Renaissance and Baroque extensions from about 1500 to after 1800, the nineteenth-century expansions from 1800 or 1850 to about 1914, and the inter-war period from 1919 to 1939. The layout of these German cities was favoured by the clear limits which the walls imposed on the successive phases of expansion of the built-up area and by the belts of open land alongside the fortifications which, when demolished, provided open sites for the erection of public buildings and magnificent boulevards. Moreover, the existence of such a belt meant that the railway stations had to be built there or just outside, and certainly not in the old town area itself—a fact which helped to relieve congestion in the city centre. Also, with the full advent of the industrial era in the second half of the nineteenth century, factories had to be located on the outskirts of the city, though some were built on open spaces inside the wall and along river fronts.

THE LIMITS OF THE URBAN AREA

The urban agglomeration cannot be interpreted adequately as a mass of materials or in terms of dead patterns. It must be interpreted as an organic part of a social group. Every urban settlement forms part of an economic, social, cultural and political unit, upon which its development depends, and all these relations have geographic expression. From this point of view, certain facts are outstanding as fixing the limits of the urban area. Chief of these is the limit of the urban built-up area. This is a very ragged fringe in which rural and urban activities and land uses are intermingled with the main extensions along the routeways. The urban influences extend outwards through the establishment of urban structures on the periphery, and especially through the centrifugal expansion of urban workers' homes. The ragged edges of the urban tract, as this whole area may be called, merge gradually into a zone that has intimate social and economic relationships with it. This is the area of regular

city deliveries and of daily movements of people from their "sub-urban" homes to the city for business and shopping and to the industrial districts and elsewhere for their daily work. It is in effect the *urban or city settlement area.* It is marked by a steadily rising population (as opposed to a slow increase or decrease in the urban area and a decrease in the rural areas on the outermost fringes) and by its relatively high density of population as against the rural areas encircling it. A large proportion of its residents is engaged in daily work in the urban area and in factories in its vicinity. Accessibility is the primary determinant of these areal relations and geographers have paid much attention to the preparation of isochronous maps showing zones of equal time accessibility to selected points in the city centre. Beyond this settlement area again there is a wider area which is mainly oriented towards its local towns, but has occasional contacts with the distant city which functions as its regional centre. This may be called the *city-region.* Many German geographical studies on all these aspects of city life have appeared in the inter-war period.[1]

[1] The following examples of urban growth will be found in later chapters—Hamburg and Bremen, Ch. 20, Berlin, Ch. 26, Cologne, p. 469, Frankfurt, p. 552.

Part IV

ECONOMIES

Jeder Wohnraum hat seine eigentümliche Wirtschaftsform, und jeder Wirtschaftsform entspricht einem besonderen Wirtschaftslandschaft, die durch Betriebsform und Produktionsziel als gestaltende Kräfte bedingt ist.[1]—Leo Waibel, 1933.

[1] Every inhabited area has its particular economy and every economy is equated to a particular kind of economic landscape shaped fundamentally by the character of the operating units and the aims of production.

CHAPTER 8

GENERAL ECONOMIC DEVELOPMENT AND ECONOMIC REGIONS[1]

WITHIN ONE generation after the establishment of the Second Reich, from 1871 to 1914, Germany underwent a revolution in its economic and social structure. In 1871 the country was predominantly rural and agricultural. Industry consisted mainly of handicrafts, pursued in the home and the small workshop, and was little affected by those developments of modern industry, based on coal and iron, which had already profoundly modified the life and face of Britain. These latter changes developed slowly in Germany in the third quarter of the century, and then set in at a prodigious rate in the 'seventies, so that in the years immediately preceding the 1914–18 war Germany rivalled Britain in the fields of industry and commerce, and had experienced tremendous changes in the character and scale of its economic and social life and organization. This phenomenal development of industry and trade in Germany was accompanied by the growth of the population from 41 millions in 1871 to 65 millions in 1913 (1914 area). Geographically, this increase was confined almost entirely to the towns, which were swollen by a steady stream of immigration from the countryside, so that, in 1910, 62 per cent of the population lived in towns and 38 per cent in the country—almost exactly the reverse of the distribution in 1871.

The great increases of industry and urban population brought in their train three other outstanding features. First, the agricultural acreage was increased and production intensified by the use of commercial fertilizers and machinery, the import of animal feedstuffs, and improved methods of cultivation, with the result that, in spite of an increase of more than 60 per cent in the population, home production of foodstuffs was able to meet 80 per cent of the total consumption. The remaining 20 per cent of the total food consumption, however, was an essential and permanent feature of the import trade, consisting partly of essential foodstuffs and partly of luxury commodities. Second, the mobility of goods and persons, effected through the medium of cheap and rapid transport facilities, was an essential counterpart and concomitant of the growth of

[1] These chapters deal with the economic geography of pre-war Germany in its historical development down to the peak of production in 1939 and during World War II. This pre-war pattern of industry, agriculture, and trade, will serve as a basis for the evaluation of the adjustment of post-war Germany to new conditions. (Ch. 15.)

industry and urban population. A great increase in the volume of internal commerce, effected over a dense network of transport arteries, both railway and waterway, was accompanied by a great increase in the numbers of persons engaged in trade, transport and administration, occupations which are mainly concentrated in the cities. Thirdly, industry became increasingly dependent upon foreign supplies of raw materials, which Germany did not possess in sufficient quantities, or which she could not produce at all for climatic reasons. The import of vegetable products involved in particular a dependence upon the equatorial lands. Further, German industry depended increasingly on the export market for the disposal of its growing volume of products. German foreign trade before 1914 was characterized by a nice balance in tonnage of exports and imports, based, like that of Britain, on a large bulk export of coke and coal and quantities of valuable manufactured products, and the import of bulky raw materials and foodstuffs. Moreover, German manufactured goods were both good in quality and cheap in price. Consequently, Germany absorbed a small but ever-increasing proportion of world trade, and dominated in particular the foreign markets of central and south-eastern Europe. In the period 1880 to 1913, the foreign trade of Germany increased from 129 to 310 marks per head of population.

This development of modern Germany was facilitated by the abolition of the outworn medieval organization of rural life and industry, that still prevailed during the first three-quarters of the nineteenth century; by the construction of the railway net; by the erection of the Zollverein, or customs union, which substituted a single trade unit for the many tariff frontiers of the separate states; by a unified financial system; and, basic to all these things, by great resources of coal and iron ores, for "the German Empire was built more truly on coal and iron than on blood and iron."[1]

In 1860 Germany's coal production amounted to 12·5 million tons, together with 4·5 million tons of lignite. At this time the production of France was 8 million tons, Belgium 9·5 million tons, and Britain 81 million tons. In 1873 German production of both coal and lignite was doubled and more than twice as large as that of France and Belgium, but a quarter that of Britain. In 1914 Germany produced 191 million tons of coal and 87 million tons of lignite, as compared with 292 million tons of coal in Britain. In 1860 Germany's production of iron ore amounted to only half a million tons, as compared with 4 millions in Britain and 1 million in France. Production of iron ore was greatly increased by the opening-up of the Lorraine field and in 1914 German iron-ore production reached about 28·5 million tons. In the period 1871–5 the output of pig-iron was 2 million tons per year, as com-

[1] Keynes, *The Economic Consequences of the Peace*, p. 75.

pared with 6·5 million tons in Britain. For the period 1911–13 the average figures were 17 million tons for Germany and less than 10 million tons for Britain. Germany, as a single economic entity, had become an effective rival of Britain as an industrial nation. She had also become a colonial Power. The interests of Britain and Germany clashed, and it was on a wave of economic prosperity that Germany entered the First World War in 1914.

After the 1914–18 war, Germany lost mineral and food resources upon which the balanced economy of the Reich was founded. She lost about 12 per cent of her total area, 12 per cent of her population (of whom 60 per cent were Germans), 12–15 per cent of her agricultural production, 10 per cent of her manufacturing capacity and 75 per cent of her iron-ore production. Twenty million tons of iron ore were lost in Lorraine, the development of which was closely related to that of the Ruhr. In the Saar, she lost about 12 million tons of coal per annum. In Upper Silesia, she lost an annual coal production of some 25 million tons, and 70 per cent of her zinc and 25 per cent of her lead. Altogether she lost 35 per cent of her annual pig-iron, and 30 per cent of her steel, production. In Posen and West Prussia she lost about a tenth of her production of grain (mainly rye) and one-sixth of her potato crop. Lastly, she lost all her colonies, nearly 3 million square kilometres in area, with a population of 12 millions.

In spite of the catastrophic decade from 1914 to 1924—marked first by the war and the blockade (1914–19), the war losses, and then the financial collapse in the early 'twenties—Germany had almost reached the pre-war level of production by 1925. During the late 'twenties she enjoyed a period of internal reconstruction and relative prosperity marked by a growth of production and foreign trade well above the 1913 level.

Following the boom of 1927–9, came in 1930 the Great Depression. From 1928 to 1932 the national income fell from 76 milliard to 45 milliard marks. Industrial production was reduced by almost a half. Employment fell from 18 millions to 12·5 millions in the same period. Unemployment in the beginning of 1933 probably reached 7 millions. Imports were reduced by a third and exports by a half. Agriculture was in a critical condition. In 1932–3 agricultural income had fallen to the lowest point since 1913.

Germany was in the very trough of the depression when Hitler came to power on January 30, 1933. The country had to be revived from its economic plight. The National Socialists had two main objects in their economic policy: first, to abolish unemployment—this was the main purpose of the first five-year plan, announced in May 1933; second, to organize the econnomic life of the nation on a war basis—this was the object of the second five-year plan. In September 1938, at the end of the

first five-year period, unemployment in the usual sense of this term was negligible, owing to labour camps, conscription, rearmament, etc. The second five-year plan aimed at *Autarkie* or national self-sufficiency, that is, the greatest possible measure of self-sufficiency, so as to enable the country to withstand a war-time blockade. Vast sums were spent on the improvement of agriculture, so as to make the country independent of foreign foodstuffs and animal feedstuffs. In the industrial field, natural resources were developed to their utmost, and lavish subsidies fostered the development of new industries and the creation of substitutes for imported raw materials, such as rubber and textiles. Foreign trade (the total of imports and exports) from 1933 to 1938 was low in value—below 9 milliard marks per annum from 1934 to 1936—but then increased slightly in the next two years, owing to an intensive trade drive. Tonnage figures, however, tell a different story, for the total tonnage of foreign trade in 1938 was 50 per cent greater than in 1933. After 1933, imports of foods and raw materials were reduced and imports were concentrated as far as possible on those raw materials which were essential to the rearmament industries. The State controlled foreign trade and its transactions, bargaining with those countries which would barter German goods for their raw materials and foodstuffs. Under such rigid State control, Germany became an armed camp and World War II inevitable.

Thus, between the wars, Germany experienced two periods of great economic activity, in which the 1913 level of production was exceeded, the first in the late 'twenties, the second in the late 'thirties. The fundamentals of the economic structure, however, as laid in the fifty years of the Second Reich, and as essentially based upon the natural resources of the country, were the same in 1939 as in 1914. The basic features of this structure are summed up in the growth and distribution of population as between town and country, and the proportion of the main occupational groups. In 1871 the total population (in the 1918–37 area) amounted to 36 millions; nearly two-thirds lived in the country and over one-third in towns. In 1910 the total population was 58 millions, with 38 per cent in the country and 62 per cent in the towns. In 1933 (including the Saar), out of a total population of 66 millions, 33 per cent lived in the country and 67 per cent in town (p. 97). The changes in the economic structure associated with this great growth of population and the great concentration of the population in towns are summed up by the statistics of occupations, as shown in the table on the next page.

The great predominance of industrial over agricultural occupations is misleading and it would be wrong to compare pre-war Germany in this respect with such highly industrialized countries as Britain and Belgium. A very large number of German peasant farmers—especially in Württemberg, Baden and Thuringia—are obliged to eke out their slender existence

by doing some kind of industrial work, either in their houses or in a factory. Consequently, agriculture is more important as a means of living than the crude figures given above would signify. For the same reason it is extremely difficult to determine just how many people are fully engaged on agriculture as a main occupation. The main fact is that there has only been a slight decrease in the numbers fully dependent on agriculture in the last fifty years, during which period the German land has been able almost to keep pace with the greatly increased demands for food from its urban populations, in contrast to Britain and Belgium, which are fed mainly by imported food supplies.

Occupations in Germany (territory as in 1918–37)

	1882		1907		1925		1933		1939	
	Nos. (mill.)	%	*Nos. (mill.)*	%	*Nos. (mill.)*	%	*Nos. (mill.)*	%	*Nos. (mill.)*	%
Agriculture and Forestry ..	15·9	40·0	14·9	27·1	14·4	23·0	13·7	21·0	12·2	18·1
Industry and Handicrafts..	13·9	35·0	22·4	40·7	25·8	41·3	25·3	38·8	27·6	40·9
Trade and Transport ..	3·9	9·7	8·2	14·9	10·5	16·9	11·1	16·9	10·7	15·9
Population ..	45·0	100·0	55·0	100·0	62·4	100·0	65·2	100·0	67·4	100·0

Industry had twice as many dependants in 1939 as in 1882, although the proportion to the total population has increased by only 4 per cent. In this period, Germany emerged as one of the great countries of large-scale industry. But this change has not killed the handicrafts, which were the basis of its industrial life in 1870. The farmer or peasant-craftsman is especially characteristic in Germany, as he is rare in Britain.

The trade and transport group reveals the largest increase from 1882 to 1939 in the numbers of dependants and in the proportion to the population as a whole. The remaining occupational groups—the public services (administration, defence and education), health services, domestic services, persons of independent means and students—increased in total from 15 to 25 per cent of the total population. The absolute and relative increase of these occupations is due to the need for increased commercial and social facilities, which accompany everywhere the increase of specialized economic production and the concentration of population in cities.

Thus, in brief, Germany is one of the greatest industrial nations in the world. Unlike Britain, she has been able to increase agricultural production to such a degree that the bulk of the food supplies for her people were produced within the country. Germany has its agricultural backbone in a large class of peasant farmers. In addition there are many peasants

who carry on some industry as a subsidiary occupation; and in the eastern provinces there were large estates run on commercial lines. But as a great producer of manufactured goods, Germany is dependent in considerable degree upon foreign countries for raw materials and for markets for her goods. Furthermore, she is dependent upon foreign countries for many of the vegetable products which she cannot grow herself and which she cannot supply in sufficient quantities to fill the national demand.

All these features of the economic and social structure of modern Germany came about within one generation. The transformation which set in with giant strides after 1870 had virtually run its course thirty years ago, in 1910, on the eve of the 1914–18 war. The subsequent period down to World War II witnessed no radical changes, either in the distribution of population or the balance of occupations, but a further accentuation of those features which were well-established in the first decade of the century. In other words, the Germany of 1938 was essentially the same as the Germany of 1914, in spite of the trials and changes of the national economy in the last thirty years, for the State, in spite of changes in its organization and policy, had the same basis to its economic structure, and the same needs of materials and markets. These fundamentals formed the background of the 1914–18 war and, in even stronger measure formed the background of World War II. Post-war changes are considered in Chapter 15.

These facts may be expressed in another way by considering the occupational statistics of the states of Germany and her neighbours. In pre-war Germany 20 per cent of the population depended on agriculture, 38·8 per cent on industry, 16·9 per cent on trade and transport, and 15·5 per cent had independent means or were without occupation. In Belgium, Holland and Switzerland there is a similar predominance of the numbers dependent on industry. In Austria the proportions engaged in industry and agriculture are equal. In Czechoslovakia the proportion is slightly in favour of agriculture, but in Bohemia-Moravia there is a great preponderance of industry as opposed to Slovakia, which is primarily agricultural. In France and Poland there is a majority dependent on agriculture. In these two countries are found the extremities of the great industrial area of Europe. In France, the industrial zone comprises the tier of departments along the northern and eastern frontiers from the Channel to the Rhine. In Poland the three western provinces of Posen, Lodz, and Kielce, have a half to two-thirds of their populace dependent on agriculture. They form, together with Upper Silesia, the eastern extremity of the industrial belt, for east of Cracow the high population density in Galicia and the Ukraine is due entirely to close agricultural settlement, and industry is negligible. Similarly there is a secondary industrial zone in the Danube area extending from Upper Silesia, through

Vienna and Wiener-Neustadt to Graz. East of this zone, the industrial population is very small, and is confined to a few great cities, notably Bratislava and Budapest, the latter containing three-quarters of the industrial workers of Hungary.

The extent of the main overall economic areas of western Germany is shown in Fig. 30. These areas are based on statistics of occupations and on the proportions of the rural and urban populations, for the administrative areas of the *Kreise*. This is in large measure a replica of the distribution of population. The area in which agricultural occupations are dominant (Areas 1, 2, and 3) covers about half of the Reich and contains about a quarter of the total population. It corresponds with the areas of the lowest population density with under eighty persons to the square kilometre. In this area from 50 to 60 per cent of the entire population including the small towns is dependent on agriculture, and a similar proportion lives in rural areas, i.e. in villages with under 2,000 inhabitants. In the remaining half of the country, the industrial exceeds the agricultural population. Here, too, the density of population exceeds 100 persons to the square kilometre and here are concentrated the majority of the cities and towns. But within it the density of population and the economic structure vary widely. (Areas 4 to 7.)

The first type of economic region has an average rural density of population of about 30 to 35 persons per square kilometre, and a high proportion engaged in industry and commerce, which together give a livelihood to three times as many people as agriculture. About 40 per cent of the population is rural, the remainder in towns. This type is found in the border zone of the Central Uplands from the Münster Bay to the industrialized upland districts of the Sudetes in Silesia. Its widest extent is found in the middle Elbe basin, where it extends from the Elbe river as far west as the Thuringian Forest. (Area 4.)

The second type is also highly industrialized, but it has a higher agricultural density of population, averaging 40–50 persons per square kilometre—a fact which is to be associated, as noted above, with its exceptionally small farm holdings. This type is found mainly in the Rhinelands and especially in the southwestern provinces. It is characterized by a high density of rural settlement, highly developed domestic handicraft industries, and a concentration of interrelated industries in many urban centres. (Area 5.)

The third type is found in the highly industrialized areas in which there is an average density of agricultural population, but agriculture is completely overshadowed by industry and commerce. These are the great industrial areas of Germany—the lower Rhinelands with its chief nucleus in the Ruhr, Saxony, the Saar, and the small section of the Upper Silesian area that was in Germany. These areas together accommodated

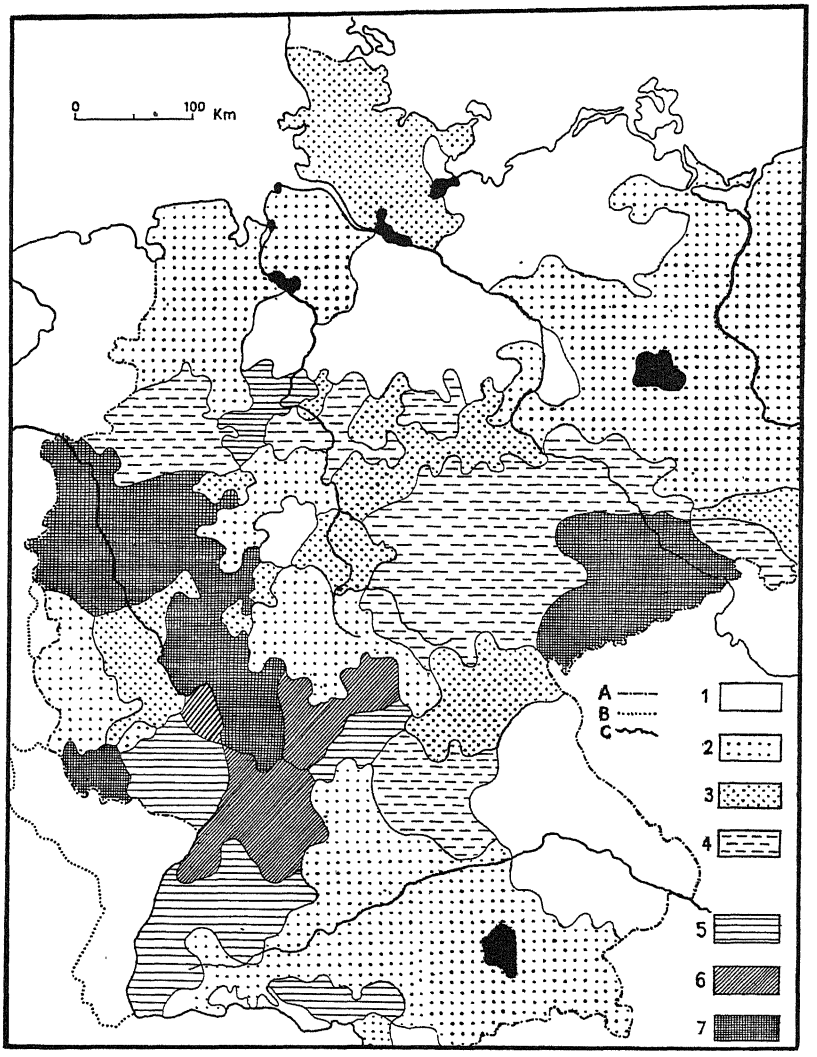


FIG. 30—GERMANY: ECONOMIC REGIONS (*from Volz*) (scale, 1 : 6 m.)

A. Frontiers in 1918 B. Frontiers before 1918 C. Rivers

1. Agricultural
2. Predominantly agricultural
3. Agricultural–industrial (in about equal proportions)
4. Slight industrial dominance
5. Mainly industrial with important agricultural proportion
6. Dominantly industrial
7. Entirely industrial (see text)

some 15 million people, nearly one-quarter of the total population of the Reich on one-tenth of the area. The Ruhr is completely urbanized, with a total population of some 4 millions. Saxony is a land in which the industrial towns are scattered in a rural countryside; the same type of economic structure and population distribution is found in the coal-field of northern France and Flanders. Upper Silesia is an exclusively industrial area. In the Saar, on the other hand, mining and industry are interspersed with farming, and the miner often has a bit of land, which he works as a subsidiary occupation. (Area 6.)

The last type of complex is the great city, a distinct entity in brick and mortar as in its social and economic structure. Most of the cities are intimately bound up in historical development as in their present functions with the lands which surround them, others are out-growths of modern industry. Still others are great historic cities placed in the midst of thinly peopled areas, whose activities they integrate, but which certainly did not call them into being. All such cities perform special services of a national character. The chief of them are Greater Berlin, and the lower Weser and Elbe areas, with their capitals in Bremen and Hamburg. Somewhat similar are Breslau and Munich. (Area 7.)

On the basis of distribution of the industrial population, of the principal industries, and of the historical background of their development, we may recognize several distinct and dominantly industrial regions in pre-war Germany. The distribution of persons engaged in industry is shown in the tables on pp. 231 and 232.

Lower Rhine Region (Rheinland-Westfalen) has its core in the Ruhr coal-field and the Cologne lignite area, together with the heavy industries associated with them. The core is encircled to the south, west and northwest by a zone in which the textile industries and metalware and machinery industries are dominant. This area employs about 2·5 million people in industry or 20 per cent of the Reich total.

The Middle Elbe Region. The present dominantly industrial character of Saxony is based in origin upon its early handicrafts industry. It is characterized by a great variety of highly skilled machine and metal-working industries and the production of textiles. Thuringia is also a seat of skilled and old-established industries such as the making of ironmongery, toys and porcelain. The lowland to the north of Saxony is an area of recent development based entirely on the mining of lignite, salt and copper, the growth of sugar beet and the production of beet sugar. It is essentially a region of new heavy industries. The lignite field of Lower Lusatia is closely related in its industrial character; it has important electricity plants and glass industries. This area employed before the war about 2·5 million people in industry or 20 per cent of the Reich total.

Upper Silesia and the Saar both owe their industry to the mining of

coal. Upper Silesia is now absorbed in its entirety in Poland and the Saar in France. The former produces 60–70 million tons, the latter 10–15 million tons.

Silesia and Württemburg have essentially the same economic structure, in that they are areas of early development of metal and textile handicraft industries, from which the modern factory industries have developed. In Württemburg, in particular, these are carried on in towns and villages and draw a large part of their labour from the surrounding farms and villages. The Silesian industry is located mainly in the Sudetes uplands.

The Middle Rhine Region has its chief foci at the northern end of the Rhine Rift Valley, in Frankfurt-Main, and Mannheim-Ludwigshafen. It is characterized by a great variety of industries which are partly rooted in the early manufacture of leather, boots and shoes; and are partly to be attributed to the advantage of transport facilities for bulky raw materials by the Rhine, that support the chemical industries, and partly to the treatment of local food supplies and other agricultural products. Eight per cent of the industrial workers of the Reich are in this area.

The Great Cities form a separate group. Each of the great cities has a similar industrial structure, possessing a great variety of industries, which draw upon a local skilled labour supply; and serve mainly a contiguous regional market, although markets may in fact be nation-wide, e.g. the cigarette industry of Dresden. *Berlin* is the greatest of them all, for it employed one million persons in industry or 8 per cent of the Reich total. Two-fifths of its employed persons in industry were engaged in the skilled and highly finished steel and metal industries. The electrical apparatus and automobile industries alone consumed a half of the total power consumption. Clothing industries, the building trades, foods, printing and publishing are the other chief industries. *Hamburg* and *Bremen*, specialized ports, owe their functions mainly in their service to their large hinterlands and not to the more or less empty wastes of heath and moorland around them. Each is an isolated and specialized industrial-commercial community.

CHAPTER 9

AGRICULTURE AND AGRICULTURAL REGIONS

LAND USES

THE CHIEF types of land use in Germany as a whole fall into six main categories: arable land (44 per cent of total area, 60 per cent of which is under cereals), permanent meadow and grass (17 per cent of total area), woods and forests, tree and bush crops (27 per cent of total area), uncultivated, but cultivable land, and unproductive land (12 per cent of total area). Comparison with the adjacent countries may be made from the following table. Land uses in Germany are shown on Fig. 31 (pp. 204, 205).

Country	*Percentage in Relation to Total Area*			
	Arable	*Perm. P. and Grass*	*Woods and Forest*	*Other Land*
Austria	23·5 (58)	27·0	37·5	12·0
Belgium	35·0 (55)	23·0	42·0	42·0
Czechoslovakia ..	42·0 (60)	16·5	32·5	9·0
Denmark	62·0 (50)	10·0	28·0	28·0
France	38·0 (50)	21·0	20·0	21·0
Germany	44·0 (60)	17·0	27·0	12·0
Netherlands	30·0 (57)	39·0	7·0	24·0
Poland	48·0 (63)	17·0	21·0	14·0
Switzerland	12·0 (24)	41·0	22·0	25·0
England and Wales ..	24·0 (46)	57·0	19·0	19·0

Figures in brackets give proportion under cereals to total arable land.
Source: *International Yearbook of Agricultural Statistics*, 1937–8.

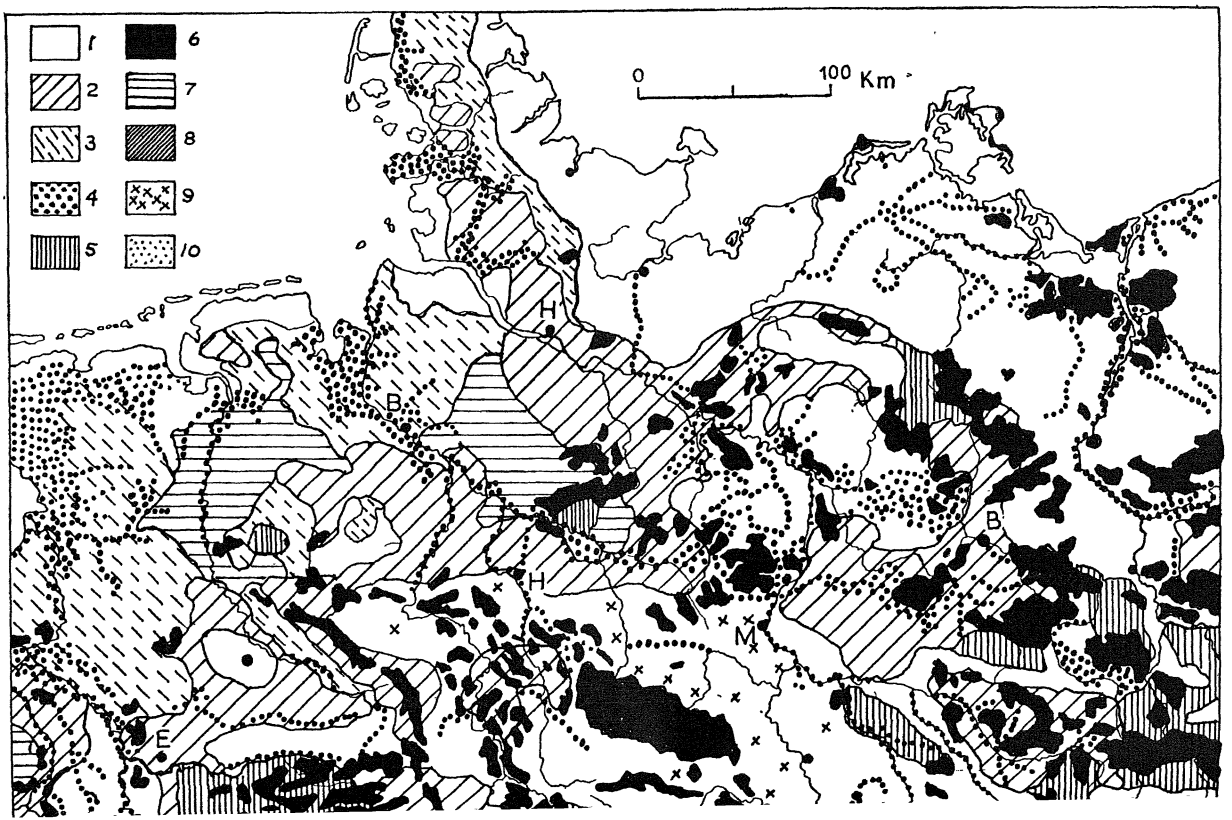
Land use and the natural vegetation cover are not static. They are in constant process of change through the adaptation of changing conditions and technics to the physical and climatic circumstances of the particular local environments. Large areas of Germany have been continuously occupied by man since Neolithic times. A third of southwest Germany falls into this category. Land free of forest and in which open woodland has been cleared has become dominantly arable land. This comes clearly to light in the present distribution of the areas with loess soils. But at the beginning of the Germanic settlement not only such

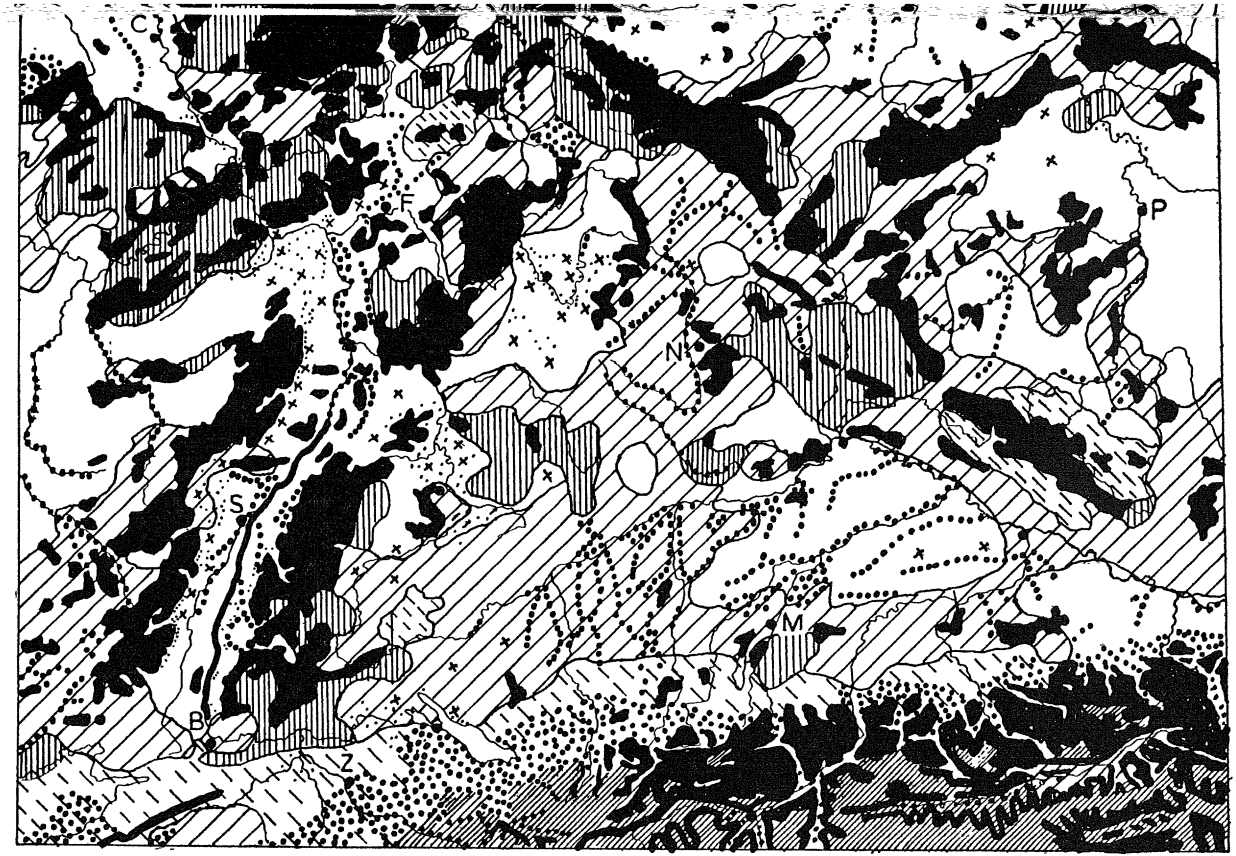
fertile areas were free of forest. The *Muschelkalk* platforms have everywhere become dominantly arable landscapes. In the Kraichgau over 60 per cent of the area is under arable land, and over 70 per cent in the neighbourhood of Würzburg. Other open and early settled lands were the Franconian and Swabian Alb, in which however the lack of surface water prohibited close settlement and where much of the heathland has been recently afforested. The same was true of the gravel plains of the Lech and Isar and much of the Geest of northern Germany. The early settled lands were not on the most fertile soils. In Schleswig, the Geest lands in the centre were the first to be settled, but they were early outstripped by the spread of settlement to the adjacent marsh and morainic lands. Similarly, the Lias plains with their meadows, arable, vineyards, and orchards, replaced the early settled uplands of the Alb. On the other hand, areas of heavy soils, such as the ground morainic uplands of northeastern Germany from Schleswig-Holstein to East Prussia, have been brought under cultivation through forest clearance and today are predominantly arable lands (60 per cent of total area). The valleys in eastern Germany have been reclaimed since the eighteenth century and brought mainly under meadow lands.

River plains, in general, must have been wet and covered with scrub and alder woods (*Auenwald*) and were actually avoided by medieval man, except at bridge points. Roads followed the raised, drier terraces along the valley rather than the floor itself. Reclamation commenced in the Middle Ages, and the soils often proved to be exceptionally fertile. This comes to light in the lower Rhine Plain, in the upper Rhine Plain, in the plains along the Danube. Ground moraines on the Bavarian Plateau have been brought into arable cultivation to the extent of a half of the total area. This is true also of the Lias plains and of the Keuper marl lowlands, and of the red Bunter clays of Hesse and the lower Eichsfeld, none of which were favoured by the initial Germanic settlement and were not cleared until the Middle Ages. Continuous labour was required to keep these lands in cultivation from prehistoric times. We know for instance that at the end of the Bronze Age a moist period set in that was favourable to forest growth even in the loess areas, but these areas, that in parts carried a steppe flora, were kept in cultivation, and the growth of forest prevented even where the climate in the west made this possible.

Forest. It is probable that in the days of Tacitus two-thirds at least of Germany was forested. The great inroads on the forest were effected in the Middle Ages. Today the general proportion is less than one-third. Forests are dominant in areas of rugged relief and on the barren sandstone plateaus of the Central Uplands. They also clothe the steep slopes of the Alps between the cultivated valley bottoms and the high rock-scarred or snow-capped summits and Alpine pastures. In the Northern

FIG. 31—GERMANY: LAND USES (*from A. d. D.L.*) (scale, 1 : 4 m.)





Land use per total area:

1. Over 50% arable
2. 30–50% arable with mixed uses, e.g. 10–30% grass or forest
3. 30–50% grassland, with mixed uses, e.g. 10–30% arable
4. Over 50% grassland, including the river plains
5. 30–50% forest, with mixed uses, e.g., 15–30% arable and/or grass
6. Forest over 50%
7. Over 35% heathland, with mixed uses, e.g. arable and/or grassland
8. High Alpine pastures, rock and ice
9. Orchards and market gardening
10. Vineyards

Lowlands, forests remain on the poor soils of Brandenburg and on the Baltic uplands. On the other hand, areas with smoother plateau relief at intermediate altitudes in the Central Uplands were extensively cleared and settled in the Middle Ages, and the Rhine Plateau, southern Bavaria (between the Danube and the Alps) and the south of the Black Forest, to name but the chief areas, present a variegated panorama of forest, field and meadow.

Since forest covers just over a quarter of the whole area of Germany, we must pay some further attention to its character and uses. Out of 28·5 million acres of forest in 1927, 6·5 million acres were deciduous and 22 million coniferous. About 2·5 million acres were classed as deciduous coppice. Coniferous forests have been extended greatly during the nineteenth century and after by plantations in order to meet the demand for timber and pulp. A quarter of the deciduous coppice is oak, that is stripped periodically for its tannin bark. Deciduous forests, both oak and beech, predominate in the Rhinelands and coniferous in the east and southeast provinces. The distribution of forest is shown in Fig. 31. The areas with little or no forest (shown as mainly arable, grass or heath) broadly correspond with the three loess areas of the *Börde*, the northern end of the upper Rhine Plain, the northwestern heathlands, and the Baltic uplands, especially around the lower Oder. While the most widespread of the deciduous forest trees is the beech, there is a marked concentration of oaks in the middle Rhine lands, a fact that accounts for the localization of the leather-tanning and modern leather industry in this area. Scots pine is dominant east of the Elbe and in Franconia and the spruce in the highlands of the south and centre. (See also Fig. 12, p. 78.)

About a half of the forests are in public ownership. Most of the coppice is privately owned. A third of the forest belongs to the State and a seventh to the communes, and such forests are located mainly in the Rhineland provinces. Until the early nineteenth century there was very little public supervision of forest growth and exploitation. But since then the standard has been enormously increased by State supervision of planting, cutting and general management. The "entailed" forests in private hands have also undergone such improvement and the private and communal woods, though varying in management, are controlled by State regulations with regard to forest cutting, reafforestation. Trained personnel manage all the communal forests. The State forests make up a third of the area under forest but yield nearly a half of the sawn timber. Small private forests and communal forests are mostly coppice (*Niederwald*), and are characteristic of the Rhineland. They are used for miscellaneous purposes—to provide the varied requirements of the farms with fuel, fencing, litter, and pasture. The bulk of the normal annual timber cut in Germany goes for fuel (about 40 per cent), and constructional

timber (about a third), with pit-prop and chemical pulp demanding much smaller quantities (less than a tenth each).

The domestic production of timber does not meet the consumption and about a third of the constructional timber was imported until 1933. After this date there was a great increase in domestic cutting, that reached over four times the annual growth, and this will necessarily reduce the rate of cutting in the post-war years.

Heath, Bog and Barren Land (*Ödland*). Only twenty-three *Kreise* in northwest Germany have over 20 per cent of their areas under heath, bog and other barren land. The biggest expanses were between the lower Elbe and Weser where figures reached 40–45 per cent. In the Lüneburg Heath the proportion is 24 per cent, but only 4–7 per cent in the Westphalian Lowland (excluding the Senne, which is almost entirely heathland). Small percentages of *Ödland* occur in the highlands of central Germany, in the Eifel, and the Rhön, for example. In southern Germany the proportion reaches 7 per cent in the young morainic areas of Oberbayern and the Allgäu, although here we know that lakes and bog covered a much greater area in the sixteenth century. Reclamation has taken place since then in these areas as well as in the Munich Plain and along the Danube, especially since the eighteenth century. Barren and rugged rocks make up most of the quarter of the total area of the *Bezirke* of Gamisch and Berchtesgaden.

The Geest of the Northern Lowland has not always carried heath. Heather is, in fact, a stunted form of scrub that has succeeded an open woodland of birch and oak, through clearance, burning, and cutting for making compost. During the nineteenth century great areas have been afforested, and farmland has also spread with the use of chemical fertilizers. Thus, whole sections of heath have been transformed. The largest tract of continuous heath covers 36 sq. km. and no point is more than 3 km. from the nearest wood. A similar trend has taken place in Jutland, where the heathland was reduced by a half in the second half of the nineteenth century. This heathland, however, is useless for modern grass farming. Grassland has spread on the low-lying wetter lands, although here sections are under both grassland and arable.

Arable Land. The predominantly arable areas, in which over 70 per cent of the total land area is devoted to arable farming, form two great belts. One extends from the Danish islands to East Prussia in the great areas of ground moraine in the Baltic coastlands. The other, and indeed the main belt, extends throughout Continental Europe from northern France, along the foreland of the Central Uplands from central Belgium to Upper Silesia. From the latter area it forks north and south of the Carpathians to broaden out into the vast belt of Black Earth soils in south Russia; and a second belt extends through Moravia into the Danube

lowland to south Russia. Between these two main belts stretch the Northern Lowlands, which, in their surface and land use, fall into three parts. The northwestern lowlands, with their combination of marsh, moor and heath, are mainly under grass but large areas especially in Germany are still uncultivated wastes (25–30 per cent). The central area of Brandenburg and Lusatia is still largely wooded with arable on its better soils. The third area in central Poland (Posen and Warsaw) is a vast area of arable farming in which forest covers today only some 15 per cent of the total area.

In the Central Uplands the arable lands are found in several scattered areas, notably the upper Rhine Plain, the middle basins of the Main and Neckar, and strips in southern Bavaria of which the largest extends along the Danube below Regensburg.

Grassland. This is combined in greatly varying degree with arable and woodland, since this is the very essence of mixed farming—crop growing and stock farming—which is universal in western and central Europe; but it seldom reaches the complete dominance of the other two. There are two belts in which permanent pasture land dominates land use to the extent of over 50 per cent of the total land area. The first embraces the Northern Lowlands from the lower Rhine to western Denmark and the lower Elbe. Most dominant on the marsh lands, it covers over 30 per cent of much of the German lowlands west of the Weser. The second belt extends throughout the northern Prealps through Switzerland and the Jura, and along the northern Prealps in Bavaria and Austria. The Swiss Plateau (between the Alps and the Jura)—the chief farming area of Switzerland—and southern Bavaria west of the river Lech have 30–50 per cent of their area under grass. To these areas must be added the higher lands in the Central Uplands.

Grassland, while dominant in these areas, occurs with varying proportions, in combination with arable land. In general, it has a higher proportion in the cooler and more humid lands in the west, and is insignificant in the drier and warmer lands to the east of the Elbe and the eastern end of the Alps (about longitude 16° East).

While the dominantly arable areas prefer the dry and summer-warm areas, grasslands prefer the cooler and moister climates. In summer-dry areas the damp valley floors are under grass. This is conspicuously the case in Brandenburg. The main areas of grassland, however, lie in the damper areas. But even the coastal marshes are not always dominantly under grass. The Ditmarsch is under arable and this is also true of the strip of marsh between the Ems and the Weser. The more recently reclaimed salt marsh is especially well suited for wheat. In the Central Uplands the areas of higher altitude are devoted mainly to grass, where they are not wooded, as in the Thüringerwald. Orchards have been

introduced into the grassland economy of the Bergisches Land in the last hundred years. In the district around Aachen, as in Verviers west of the frontier, arable land has steadily decreased before grass so as to result in a *Butterland* economy. Large stretches of the Rhine Massif have been afforested in place of heath, and large stretches of high bog are only found across the frontier in the Hohes Venn. In rainshadow areas, there is a marked increase of arable land, as in the Pellenz, Maifeld and Ahrtal.

Stony rough pastures on the heights and strips of richer meadows in the valleys characterize the high Westerwald, where the settlements are sheltered by tree fences. In most of the higher uplands, however, as in the Bohemian Forest, Black Forest, and Vogtland, arable and grass land are intermixed and alternate in rotation (*Feldgraswirtschaft*) in an ever-changing panorama, and settlements reach upwards as far as the limit of cultivated land. There is no temporary settlement of shepherds in high summer pastures as in the *hautes chaumes* of the Vosges. Only the highest parts of the Black Forest, Vosges and Sudetes have pastures above the forest line. Whereas in the Vosges and the Black Forest these high pastures are temporarily occupied by shepherds' huts, in other areas, such as the Rhön, hay is carried from the high pasture down to the villages, without any transference of the cattle to the pasture itself. Between the pastures and the village, however, there are often intermediate settlements in which young stock are reared. Large areas of the Central Uplands are under *Feldgraswirtschaft*, in which meadow and crop are constantly rotated from year to year. The practice of burning the bush for temporary cultivation (*Haubergwirtschaft*) is still carried on in parts, although such areas are recorded as woodland. The Siegerland is one of the areas of its survival.

Grassland is ever on the increase in the morainic lands of the Bavarian Plateau. It becomes dominant in a strip right along the foot of the Prealps and in the Prealps themselves. Thus, especially on the Flysch sandstones to the east in Austria, grassland is dominant, but it is far less significant on the limestone Prealps.

The Allgäu must be singled out for special reference. The rainy climate and the cool summers coupled with the predominance of heavy clay soils have favoured the development of pastoralism. Three-quarters of the whole area is under grassland. This one-sidedness is due to the spread of a monoculture that has developed in Switzerland over the last 150 years, and spread to the Allgäu in the last fifty years. It involves concentration of grass to the exclusion of all other subsistence crops. Fields under crops are quite negligible, and it is only on the hill-tops and in valley gorges that woodland remains. Even on the northern shores of Lake Constance, where field, vineyard and orchard are intermingled, both arable land and vineyards have somewhat decreased before the

spread of permanent pasture. These changes are most marked on the Swiss side, where the men do the farm work and the women are employed in the making of textiles, the predominant industry of the area around St. Gallen.

Crops. Rye is particularly suited to the cooler growing seasons and poor soils of the Northern Lowlands and of the Central Uplands. Between the lower Ems and the lower Weser, in much of Brandenburg and Posen, some three-quarters of the grain land is sown with winter rye. It is least important in Thuringia and Württemberg, its place being taken here by spelt. In the higher altitudes and in the eastern provinces the thick snow-cover necessitates the sowing of grain in spring, and this is the dominant grain in all the higher lands of the Central Uplands.

Wheat makes more exacting demands on both soil and climate and is the main grain in the lower lands of south Germany and in the Börde, whereas in the Northern Lowland it is only grown on the marsh soils of the Elbe and Vistula. It is also the main grain in the Rhine lowlands. Spelt is a variant of wheat that is peculiar to Swabia, where it covers two-fifths of the grain land. Winter-sown barley has much the same distribution as wheat. Summer-sown barley prefers the dry, sunny Continental climate in south Germany, Thuringia, Saxony and east Holstein. Oats are dominant in the cool, damp northwest on the North Sea coastlands and in the mountains. Germany is the biggest producer of oats in Europe. The potato is grown widely as a foodstuff. The greatest areas of production are in the eastern tier of provinces east of Berlin, in the middle Elbe basin north of a line from Erfurt to Dresden, and the upper Rhine lands, with its main nucleus at the northern end of the Rift valley. But the highest proportion of potatoes to grain is attained in the Rhenish uplands—in the Odenwald (50–60 per cent) and the Siegerland (80 per cent). Sugar beet, on the other hand, has a very localized production. Saxony and Hanover Börde are the chief areas, with secondary areas on the loess soils of central Silesia (immediately west of Breslau) and the Cologne lowland (immediately west of Cologne). Secondary areas of production are Mecklenburg and the northern end of the upper Rhine plain.

Of these various crops, rye covers by far the greatest area (4·2 million hectares) with oats as a close second (2·8 million hectares). Potatoes cover 2·8 and wheat 2·1 million hectares. Meadows cover 8·4 and arable 19·1 million hectares. The rye harvest is a quarter of the world's total. Rye and oats are normally exported. Barley and potatoes are absorbed entirely by the home market, but wheat and maize production cannot meet the home demand and there are normally considerable imports of these two grains. Sugar beet meets the home demand for beet sugar as well as supporting an export trade. Orchards and vineyards also meet the national needs.

Livestock. These are widespread owing to the general distribution of meadow and the growth of fodder crops and the universal practice of a mixed farming economy. In 1939 there were 3·0 million horses, 20·5 million cattle, 25 million pigs, 4·8 million sheep and 2·3 million goats. But production no longer meets consumption. Cattle are normally stall fed, except for the Alpine areas, where they go to open pastures in summer, and in the northern marshes, where they are kept on the meadow throughout the year. The main concentrations of cattle are found in the North Sea coastlands and Schleswig-Holstein, and in Württemberg and the Bavarian Plateau. Pig-raising is more important in Germany than in any other land and the greatest area of concentration is in the north-west, inside a curved line from Hamburg to the Ruhr. The remarkable decrease in the numbers of sheep in the last hundred years is paralleled by the development of rural economies in other west European countries. The main areas of concentration (with over 32 per 100 hectares) are in the middle Elbe Börde, Mecklenburg and western Pomerania, and Württemberg.

TYPES OF RURAL ECONOMY

Rural economy depends upon certain basic conditions which may be briefly summarized. The size of the farm holding and the disposition of the fields determine in considerable measure the character of farm organization and production. The large estate permits mechanization and the employment of hired labour on a commercial scale; in areas where it is dominant there is normally a large surplus of crops or stock for sale. The small-holding is usually a family concern, and little of its production leaves the farm. When its productive capacity is low, the peasant has to supplement his livelihood by a domestic craft, by working in a workshop or as a farm labourer. The family do all the farm work except for help at harvest time; the cows provide the milk and draw the plough. The adequacy of a holding to support a family clearly depends, however, upon its productive capacity; a small farm on good land may keep a family in relative comfort; on less productive land, it would be quite inadequate. Climate and soil are the two chief physical determinants of the range of potential crops and their possible yields.

The soils fall into several main types judged according to their value (Fig. 32). The fine-textured, friable loams developed on the loessic deposits are among the most fertile soils of Europe and are especially suited to arable cultivation. There are large areas of infertile soils in the Northern Lowlands, which support only unexacting crops like rye, potatoes and oats. Equally poor soils are to be found in the highland areas as on the sandstone plateaus of central Germany, and the granitic soils of southern Bohemia, as well as the rocky or damp heavy clay soils of high altitudes.

All these poor soils cover a good sixth of the agricultural area of Germany. The remaining soils range from heavy clays to loamy sands; the most productive of these are on the rolling surfaces of the Baltic uplands and the rich alluvial soils of the North Sea marshes and polders.

Climate is the second determinant. The upper limit of wheat cultivation is about one thousand feet in central Europe, and of rye about two

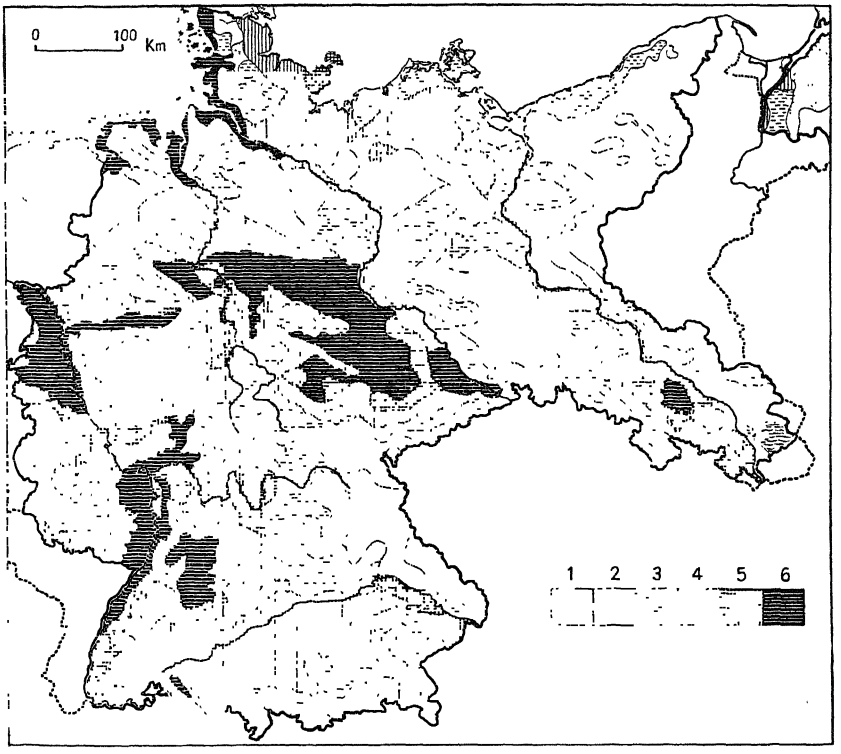


FIG. 32—GERMANY: ASSESSED VALUE OF LAND VALUE IN REICHSMARKS (pre-war) OF EACH HECTARE OF FARMED LAND (*from Niehaus*) (scale, 1 : 10 m.)

1. under 500. 2. 500–700. 3. 700–1000. 4. 1000–1400. 5. 1400–1800. 6. over 1800.

thousand feet. Particularly important are temperature and rainfall conditions in the chief growing season from May to July. The low-lying sheltered lands of the southwest of Germany and Switzerland have an early spring and a long, warm, dry summer; here thrive the vine, tobacco, hops and maize. The Northern Lowlands beyond the Elbe and in the Danube lowlands also have a small rainfall and a long dry summer, while its winters are severe. Here meadow does not flourish, except on the valley bottoms, and among the cultivated grasses the place of the

moisture-loving clovers is taken by the drought-resistant lucerne. This is an area of arable farming, with rye on the poorer soils and wheat on the better soils to the south. The drought-resistant spring-sown barley is also widely cultivated. Spring is everywhere the dry season but rain falls generally in summer, especially in the northern coastlands and in the Southern Uplands and mountains. Such conditions are unsuited to grain cultivation. Permanent pasture, clovers and oats dominate the land utilization.

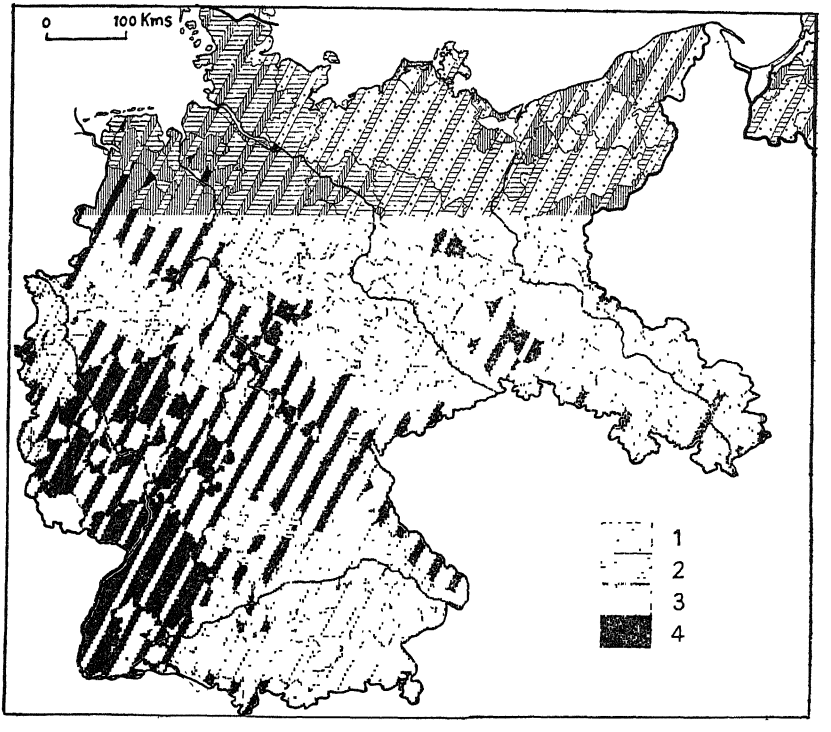


FIG. 33—GERMANY: SIZE OF FARM HOLDINGS (pre-war) (*from Niehaus* (scale, 1 : 10 m.)

1. Over 250 acres. 2. 50–250 acres. 3. 12·5–50 acres. 4. Under 12·5 acres.

Holdings of under five hectares (one hectare equals 2·5 acres) take up 11·5 per cent of the farm area, and they are dominant throughout west Germany (Fig. 33). On the other hand, the large holdings and estates over 100 hectares take up 20 per cent of the farm area, and are dominant in eastern Germany, east of the Elbe and the upper Oder. The Junker or large landowner on these great estates depended upon the hired labour of a rural proletariat. With a high birth rate among its rural folk, a lack of non-rural occupations and the spread of large-scale mechanized

farming methods, this area has been a main reservoir for the growing urban centres. The small-holding of less than five hectares is normally not adequate to meet all the requirements of the farmer and his family and he usually has another string to his bow, working for a wealthier peasant, engaging in a handicraft on his own account, or as a worker in a factory. The intermediate type, the farmer peasant, depends for his livelihood upon the produce of his farm, which he works with the aid of his family and some outside labour at harvest time.

Farm Holdings in 1939 (*Statistisches Handbuch von Deutschland*).
Total Number: 9,532,907
Farm Area: 43,165,882 hectares

Holdings (hectares)	*No.*	*Area hectares*
<0·5 ..	6,334,000	645,000
0·5–2·0 ..	959,000	1,022,000
2·0–5·0 ..	762,000	2,529,000
5·0–20·0 ..	1,105,000	11,263,000
20·0–50·0 ..	281,000	8,382,000
50·0–100·0 ..	55,000	3,681,000
100·0–200·0 ..	17,000	2,306,000
Over 200·0 ..	17,000	13,335,000
TOTAL ..	9,530,000	43,163,000

It will be noted that there is a great majority of small-holdings, farms of less than 2½ acres making just short of a half of the total. Farms of less than 25 acres make up nearly nine-tenths of the total. Almost 90 per cent of the agricultural land was tilled by the owners and about 12 per cent by tenants or hired labourers. About 40 per cent of all the farmers cultivated their own land only; 30 per cent cultivated rented land in addition to their own, and the remaining 30 per cent cultivated rented land. There has been virtually no change in this division of land ownership in the last fifty years.

The general trend in the last fifty years has been for the large estates to be reduced in number and subdivided in smaller holdings, while the greatest numerical increase is recorded in the dwarf holdings. The peasant farms show least change. They form the stable agricultural backbone of the country and it was to preserve this peasant class that the Hitler Government introduced the Hereditary Farms Law (*Reichserbhofgesetz*) in 1933. This law applied to all farms which were big enough to support a family and did not exceed 125 hectares. All such farms were entailed and their owners deprived of the power of alienating or mort-

gaging their land. Steps were also taken to consolidate the dwarf holdings so as to make holdings sufficiently large to support a family. The Reich Settlement Law of 1919 was designed to take over large eastern estates and divide them. By 1932 160,000 acres were disposed of in this way and the Hitler Government purchased over 1 million acres for this purpose. In 1938 all entails were abolished on property except the peasant farms under the Hereditary Farms Law as from January 1939. This brought many estates into the hands of the Government and made them available for peasant settlement.

A Soviet law of 1945 aimed at the elimination of the large estate in eastern Germany with over 100 hectares. A total area of 3 million hectares has been subdivided into holdings of 7–9 hectares. Two million persons were affected by these changes, receiving among them 2 million hectares, the rest being used as public property. These people included small peasants and refugees from the east. Through these measures, the proportion of holdings of 5–20 hectares increased from 36·7 to 69 in Mecklenburg, 34 to 48·3 in Brandenburg, and 49 in the zone as a whole. In the Western Zones, though a similar law was passed, it did not have such remarkable results, since here there are few large estates. Western German lands are in the hands of small-holdings, and here the main agrarian problem is to consolidate holdings that are too small for the support of their owners.

We have already examined on p. 128 the main types of husbandry in the early nineteenth century. The three-field system was modified by individual farmers by introducing a crop such as potatoes, beet, roots or grasses in place of the fallow in every third year. This results today in a dominantly arable type of farming in which about two-thirds of the area is in arable, all other crops taking up about one-third of the land. The peasant follows, in effect, a three-year rotation. The main grains are wheat (winter-sown) and barley (summer-sown). The other crops include root crops in combination with sugar beet and beet root on good soils, and potatoes and turnips on poor soils. With these there also occur in such three-course rotations special crops, often referred to as industrial crops, such as hops, tobacco, flax, hemp. Thus, this intensive three-year rotation system consists of wheat, root crops (mainly sugar beet), barley on good soils; and rye, roots (potatoes) and oats on the poorer sandy soils. This modified three-year rotation occurs over a wide area of Germany, in those areas that were early settled and contain the compact village, in which the three-field system of land-holdings was long practised. The simple three-course, with land in fallow from harvest to the following June, when the first ploughing takes place (*Schwarze Brache*), is still found in considerable areas in South Germany.

This type merges into other kinds of rotations. The Norfolk four-

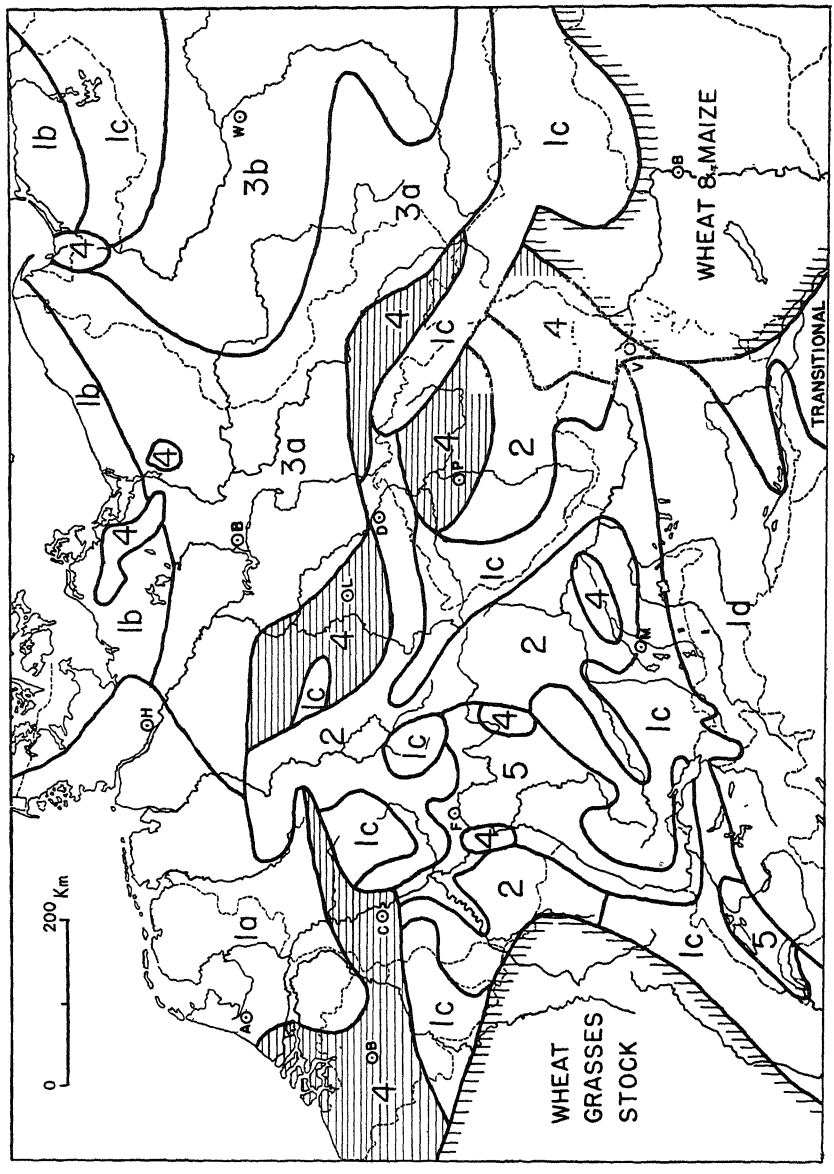


FIG. 34—CENTRAL EUROPE: AGRICULTURAL REGIONS (*based on Niehaus*) (scale, 1 : 10 m.)

Humid and Cool Regions

1a. Lowlands—dairying and beef production: pastures, hay, rye and oats, forage crops: Northwestern Lowlands.

1b. Rolling land—ditto: Baltic Uplands.

1c. Foothills and low mountains—dairying, pasture, forest.

1d. High Alps.

Drier and Warmer Regions

2. Hilly country—grain (rye, oats), potatoes, livestock.

3a. Plains and rolling land—rye, potatoes, livestock, with forest and marsh dominant.

3b. Ditto, with arable land dominant (over 70% of total area), with wheat and barley as subsidiary crops to rye.

[*Continued at foot of next page*

course system includes roots, oats, either red clover or legumes, and wheat. Rye and oats are grown on the light sandy soils and wheat and barley on the good loams and clays; the cereal crops make up about 60 per cent of the total. In the rotation of the Baltic lands and in the northern marshlands there occurs a long rotation with several years under grasses. This system was introduced in the early eighteenth century on the large estates. In the drier areas, in the Danish islands, Mecklenburg and Vorpommern, grains and roots are more important.

AGRICULTURAL REGIONS

Let us now turn to the character and extent of the chief areas in which the same kind of rural economy predominates (Fig. 34 and Appendix).

Mixed farming everywhere predominates, and no farms depend exclusively on grain production. Even the largest farms of the dominant grain-growing lands draw at least a third to a half of their income from the sale of animal products, while those depending on the sale of livestock products only carry an intensive arable cultivation on about a third of their land. For the Reich as a whole two-thirds of the agricultural production is derived from animals and animal products, and one-third from crops. It is according to the proportions of crops and animal production that the following classification of the agricultural regions has been based.

As a first general subdivision we may recognize those areas in which more than 60 per cent of the farm income is derived from livestock and those in which 40 per cent and more of the income is derived from crops. The first are mainly located in humid and cool regions, and the second in drier and warmer regions.

The chief livestock farming areas coincide with the grassland belts in the Northern Lowlands and the southern highlands and the Alps. The first stretches from the Dutch frontier to East Prussia, and in fact finds its continuation in northern Holland and western Denmark. It falls into two sections in Germany, the Northwestern Lowlands and the Baltic provinces.

The Northwestern Lowlands include the polderlands (German, *marschen*), the low peat bogs (German, *moore*), and the higher and drier sandy heathlands (German, *geest*). The polderlands, consisting of flat, moist alluvial clays and loams, do not have a single type of farm economy. In some parts, meadows dominate; in others, arable farming—although oats

4. (Horizontal lines) Plains and rolling land—wheat, barley, sugar beet and livestock, with industrial crops (e.g. flax in Belgium).

5. River valleys and hill lands—wine, fruits and grain.

The area in the N.W. of Yugoslavia is marked as transitional. Consult the map by Niehaus in the *A. d. D.L.* on which this is based.

are often in excess of the bread grains. The dominance of arable farming is especially characteristic of the Dutch provinces of Holland, Zeeland and the lower Rhine district of the Betuwe. But everywhere the economy is centred upon livestock production and pastures generally dominate the land use. Cattle, bought lean in the spring, are fattened on the meadows. Beef cattle and horses are also bred, and dairy farming is especially important near the great cities. Farm holdings from 50 to 250 acres are the most numerous.

Adjoining the polderlands are the low waterlogged peat moors and the higher, drier, sandy heathlands, which are traversed by wide river flats with rich natural meadows. Large parts of the moors and heath have been brought under cultivation in the last two centuries, though uncultivated tracts still cover as much as a third of the area of some districts. The poverty-stricken condition of these poor lands has been greatly improved by crop rotation and the application of chemical fertilizers and the import of large quantities of cattle feedstuffs, so that the small peasant is able to sell large quantities of fattened stock, notably pigs. The natural meadows make possible both a cattle-breeding and dairying industry. Most farms have half of their area under meadow and pasture. The main crops on the arable land are rye, oats and potatoes. Pig-breeding and fattening have grown in importance with the dairying industry and with the use of rye and potatoes as feedstuffs. The majority of the holdings on the Geest have under 50 acres. Finally, all these areas normally import large quantities of foreign feedstuffs, notably barley and corn, through Bremen and Hamburg.

Eastern Schleswig-Holstein, Mecklenburg, Pomerania and East Prussia specialize in stock production, although both the country and the economy are very different from the Northwestern Lowlands. This is a rolling countryside of ground moraines, with productive loam soils, like those of East Anglia. Forests have been cleared. Arable farming dominates. Moreover, its climate is cool and moist, although experiencing more severe winters than along the North Sea coastlands. Lastly, it is an area of large farms—especially in Mecklenburg where 60 per cent of the area is in holdings of over 250 acres, and nearly a quarter in holdings that exceed 2,500 acres. Many estates, however, have been broken up since 1945. The old strip system of farming has been displaced by compact hedged fields as in southern Sweden, Denmark and Britain. On the arable land, rye usually exceeds wheat, the latter being more important only in eastern Holstein, and potatoes are grown in combination with rye. But the most distinctive feature is the high proportion of cultivated grasses, notably the clovers and oats. This arable production turns upon stock production. An elaborate and long rotation of crops is practised within hedged fields, that was introduced during the eighteenth century.

It is a region of dairying and beef and pig production, and it will be remembered that the Holstein farmers gave the chief impetus to the development of dairying in Denmark. Little fluid milk is marketed owing to the considerable distance from the large urban markets, but large quantities of butter and cheese are exported.

The high plateaus of central Germany and the Prealps have a very heavy rainfall and are largely forested. Patches of cultivated land on stony fields are devoted to the hardiest and quickest-growing crops—oats, rye and potatoes—which are used for both human consumption and animal feedstuffs. The valleys contain rich irrigated meadow lands and the higher slopes rough pastures in or above the forests, these features being especially characteristic of the Black Forest and the Vosges. The cattle of these areas yield less milk than those of the northern regions (1,500 to 2,000 litres per cow per annum as opposed to over 3,000 in the polders), but contain more butter-fat. Much butter and cheese is produced for distant markets. In the Bavarian Plateau (Bavaria south of the Danube), with its stretches of fertile land interspersed with marsh, forest and wide river meadows, wheat and barley cover considerable areas and are even sold as cash crops. Throughout these areas farms are small, averaging 12½ to 50 acres. In the Black Forest a particularly large part (two-fifths) of the ploughed land is devoted to potatoes.

We now turn to the areas which draw the bulk of their income from crop sales. In these areas the land is mainly arable cultivation.

Throughout central Germany there stretches a great triangular area with its apex in the Lower Weser uplands, its base approximately on the Danube and flanked by sheltering highlands to east and west.

It consists mainly of the Weser and Leine uplands in the province of Hesse in the north, and the upper basins of the Maine and Neckar, Upper and Middle Franconia to the south. It consists of hilly lands alternating with lower lands and valleys. From the latter, which are drier and warmer, there is a gradual transition to the surrounding highlands with their pastoral economy. The upper limit of wheat cultivation is about 1,000 feet, of rye about 2,000 feet. In these higher lands and everywhere on sandy soils, rye, oats and potatoes are the chief crops and, on balance, livestock sales exceed those of crops. The basins and valleys are fertile and sheltered, and produce crops of wheat, summer barley (especially for malting, round Nuremberg), and spelt, and even beets and orchards. Arable amounts to two-thirds of the cultivated area, meadow land one-fourth to one-third. The whole of this zone is one of small holdings with scattered strips, and subdivision has been greatly aggravated by the custom of divided inheritance. Holdings between 12½ and 50 acres are the most widely distributed. The three-course rotation is retained over wide areas. The peasant and his family helpers do all the farm work; a

meagre living is wrung from the poor land and little is sold. Of horses there are few, and the cow is at once a milk, draught and (ultimately) meat animal. Frequently the farm does not support its workers and supplementary employment has to be sought in workshop, a factory, or on a farm during the snow-bound winter months, or by emigration to the city.

The lower lands and valleys of southwest Germany form a very distinctive agricultural region. The Rhine lowland and its flanking valleys enjoy a small rainfall and a long, warm summer. This is the zone of vines and orchards, tobacco and hops. These are the chief cash crops of tiny holdings with scattered strips, in which appear, in bright mosaic, small strips of wheat, maize and potatoes, from which, and their cows, the peasants obtain their food. The same type of farming is found in the Rhine above Basel and round Lake Constance in northeast Switzerland. The smooth plateaus of the middle Main and Neckar basins, with their warm limestone soils, are good grain-growing country, and stand in marked contrast to the valleys, in which vineyards and orchards are concentrated in minute holdings.

Arable farming is dominant on the *Gäue* and *Filder*. On the slopes of the *Berge*—the Keuper sandstone hills—and in the dissected scarp zone of the Alb, there are hop-fields, orchards and market gardening, while downstream from Rottenburg on the Neckar the vine flourishes on sunny terraced slopes. Only on the Keuper sands and marls is forest dominant. The *Gäue* uplands are often dry and bare and carry heather, that was formerly used for pasturing sheep in association with the arable farming of the *Gewanndörfer*. To this day, the villages are compact and sited in hollows while the strips fields around them are still cultivated on a three-course rotation that derives from the old three-field system of communal rotation. The *Gäue* of Franconia, north of the west–east Keuper sandstone hills from Heilbronn to Hall, are more extensive than in the Neckar basin and carry distinctive names such as the Hohenlohe Ebene, the Bauland, and the Grabfeld. They are distinct from the valleys, that are sunken some hundred metres in the plateau and have strips of meadow land on their floors, and vineyards and orchards on their slopes. Here holdings are minute and the hoe is the typical work implement, rather than the plough that is used on the arable lands of the plateau. These valley tracts bear the name *Grunde*.

The productivity of the loess-covered platforms of the Upper Rhine Plain is reflected in the density of its compact villages. They are spaced at intervals of only 3·5 km. along the Bergstrasse and 3 to 2·5 km. on the edge of the Rhine-Hesse upland. On the sandy soils of the lower terrace, however, where a good deal of the land is still under forest, the villages are spaced at an average distance of 7 km. apart. Small-holdings and horticultural methods and vine cultivation with intercalated crops are

general. The village has a semi-urban function and aspect, especially in the foothill zone, where most of the vineyards are concentrated. Large barns are absent and the multi-storied houses have cellars for wine-making and storage, with outside staircases to the living-quarters above. Compact villages made up of such houses, with narrow winding streets, and frequently with no market place, have over 1,000 inhabitants.

East of the lower Elbe sandy soils dominate with scattered patches of loam, and much of the area is covered with forest and strewn with lake and marsh. The winters are long and cold and the summers warm and dry. Apart from the marshy valley bottoms, the sands and drought are not suited to permanent grass and arable farming is more important than cattle-raising. Rye and potatoes are the chief crops, with oats third in importance as a feedstuff. The potatoes are used for pig-fattening, especially on the smaller holdings in more isolated areas as in the extreme northeast. This is a region, however, of large farms and estates, and here the potatoes are made into alcohol on the farm or into starch and potato-meal in the country towns. This belt is continued eastwards in the great arable lands of central Poland where the same crops obtain, but the land is richer and practically entirely cleared of its forest cover.

Especially marked in Brandenburg is the contrast between the raised remnants of the diluvial platforms and the intervening low-lying, ill-drained plains. The former have smooth surfaces and loam soils and are normally under arable cultivation with compact villages. The plains, on the other hand, were waterlogged and wooded throughout the Middle Ages and were not effectively brought into agricultural use until the later centuries. These are today meadowlands, although large stretches are still covered with bog and forest. The arrangement of such separate compartments, each bounded by small scarplets overlooking the plains, is especially characteristic of central Brandenburg around Berlin.

Between the Northern Lowlands and the Central Uplands there is a foreland zone, characterized by treeless plains, with clustered villages and hedgeless fields. This is the tillage zone *par excellence* of Europe, developed upon fertile loams which are mainly developed from underlying loessic materials. The zone extends from the Cologne Bay to Silesia. It includes, from west to east, the Cologne Bay, the narrow strip of the Haarstrang, the lower Saxony *Börde* from the northern edge of the Weser uplands to Magdeburg, the north foreland of the Harz, the Saxon lowland, and Upper Lusatia. To the west it is continued in central Belgium and the grain lands of northern France. To the east from Silesia the belt is continued in two branches to the north and south of the Carpathians. The first branch includes Galicia and opens out to the Ukraine, and the second passes through Moravia to the plains of the middle and lower Danube, while both branches merge in the great

expanse of the so-called Black Earth Belt of southern Russia. This whole belt contains the chief arable grain lands of Europe. Village after village over hundreds of miles has at least seven-tenths of its total lands under the plough. Moreover, the bulk of the settlement is concentrated in villages around which the three-field system of communal cultivation was developed in the Middle Ages and still determines the pattern of the fields, except where these have been consolidated in recent years.

The climate east of the Harz mountains is continental, whereas to the west it is more equable, milder and moister. This accounts for the difference in colour of the soils that have been developed from the common basic material loess deposits. East of the Harz, these parent materials yield black soils or *chernozems,* that were developed under steppe conditions. To the west, the humus and some of the more soluble constituents have been washed away, so that the soil is yellow-brown in colour but still high in plant foods and easily arable. In eastern Germany the farms are large, averaging over 250 acres, while in the west they are smaller, under 250 acres. In the east, the dominant crops are wheat, barley (especially for malting), and sugar beets, the last often being the pivot of the whole rotation. Fodder grasses include lucerne, which is more suited to the climate than the moisture-loving clovers. In west Germany, oats and rye take the place of beets, but on the large farms of central Belgium and in Picardy the sugar beet is again a main product of that type of large-scale farming which the Frenchman knows as *la grand culture.* Stock are kept in stalls and fattened on the tops of the beet and the waste which is returned to the farmer when the beets have been crushed in a near-by factory. Dairying is particularly important near the great cities, and the great masses of urban population lie in the heart of or near to this extensive agricultural belt. In Germany, the two chief areas are the middle Elbe basin, and Silesia, west of the Oder. The farms are large (over 250 acres), and farming is pursued on a commercial scale. Mechanization coupled with a large hired labour supply, which is especially needed for field work in the cultivation of the beet, and scientific cultivation, result in very high yields. These are among the highest assessed lands in Germany and produce as much as forty to fifty bushels of wheat per acre

APPENDIX. Land Use by Geographic Units
(After N. Krebs,[1] on the basis of statistics by *Kreise*.)

Dominantly Arable Lands

	Arable	*Gardens and Vineyards*	*Cultivated Grass*	*Rough Grass*	*Woodland*
I. North German Morainic Lands					
East Schleswig-Holstein Upland[2]	60	1	9	12	7
Mecklenburg Lowland	56	1	9	8	17
Vor-Pommern Lowland	60	1	12	6	15
Altmark	52	1	10	7	25
Middle Mark Lowland (*Platte*)	55	1	5	1	30
II. Loess Lowlands					
Cologne Lowland (*Bucht*)	59	3	5	3	14
Soest and Warburg *Börde*	55	2	4	10	21
Lower Saxon *Börde* (*Gebirgsvorland*)	60	2	8	3	18
Harz Foreland (North and East)	80	2	4	1	5
Saxon Lowland (*Bucht*)	69	2	7	1	11
Thuringian Lowland	67	1	4	1	18
Upper Lusatia	52	2	15	2	21
III. Fertile Lands of the Central Uplands					
Westphalian Upland	50	2	7	5	26
Leine Trough and Lower Eichsfeld	53	1	7	4	26
Maifeld	55	1	6	2	27
Limburg Lowland	56	1	9	1	27
Kassel Lowland	46	1	9	3	35
Wetterau	52	2	12	1	27
IV. South German Lands					
Rheingau[3]	36	7	6	—	41
Rhein-Hesse Upland	70	22	2	—	4
Vorder Pfalz[3]	40	9	7	—	35
Pfälzer Bergland (Saar-Nahe Uplands) and Westrich (Haardt)	54	1	12	1	26
Vosges Foothills	24	13	12	4	42
Baden Plain[3]	38	3	14	1	35
Kraichgau-Bauland	53	2	9	1	28

[1] "Die Verteilung der Kulturen in Deutschland," *Festschrift zur Hundertjahrfeier des Vereims für Geographie und Statistik zu Frankfurt-am-Main*, 1937.
[2] *Kreise* Aprenrade, Hadersleben and Sonderburg.
[3] *Kreise* include some forested uplands.

Dominantly Arable Lands—*contd.*

	Arable	*Gardens and Vineyards*	*Cultivated Grass*	*Rough Grass*	*Woodland*
IV. South German Lands—contd.					
Franconian Platform (*Platte*) ..	57	2	8	2	26
Hohenloher Plain (*Ebene*)	46	2	21	3	24
Unteres Gäu of Swabia (Neckar Lowland)	53	9	13	1	19
Oberes Gäu of Swabia (Neckar Lowland)	38	5	19	2	30
Ries	52	2	19	3	20
Dungau	58	1	18	1	18
Upper Danube Plains	46	1	19	3	25
Lower Bavarian Upland (Tertiary Hills)	51	1	19	1	23
Bavarian Old Morainic Upland ..	48	1	26	1	18

Dominantly Meadow and Woodland Areas

I. Northwest Grass and Heath Lands					
West Schleswig-Holstein Marsch ..	39	1	14	32	2
Central Schleswig-Holstein Geest	50	2	12	14	9
Luneburg Heath: West	26	2	13	20	8
Luneburg Heath: East	29	1	8	7	28
Altmark (between Luneburg Heath and Elbe)	32	1	14	10	28
Lower Weser Marsch	13	3	24	52	—
East Frisian Marsch	38	1	11	35	2
East Frisian-Oldenburg Geest ..	23	1	15	24	8
Oldenburg-Lower Saxon Heath: West	36	1	15	16	10
Lower Saxon Heath: East	36	2	15	11	14
Middle Emsland	28	1	12	17	14
Westphalian Lowland	45	2	10	15	17
Lower Rhine Plain	40	2	7	21	17
II. Northeast Glaciated Lowlands					
South Mecklenburg and Uckermark Uplands	43	1	9	6	29
Havelland	37	1	23	5	26
Fläming Heath	42	1	11	1	39
Lower Lusatian Heath	32	1	10	1	46

Dominantly Meadow and Woodland Areas—*contd.*

	Arable	*Gardens and Vineyards*	*Cultivated Grass*	*Rough Grass*	*Woodland*
III. Western Central Uplands					
Rhine Massif	33	1	11	5	43
Eifel	29	1	10	11	37
Moselle Valley	35	2	11	3	44
Hunsrück	36	1	14	1	42
Rhine Gorge	37	2	8	1	42
Bergisches Land	36	4	7	10	30
Vorderes Siegerland	36	2	8	7	40
Hinteres Sieger- and Sauerland	24	1	7	7	56
Waldeck, Frankenberg	35	1	9	5	44
Westerwald	29	1	14	6	45
Taunus, Lahntal	37	1	10	1	46
Teutoburger Wald, Lippe	49	2	9	7	23
Upper Weser, Lower Werra	40	1	7	6	40
Northern Hesse	39	1	12	3	39
Upper Fulda	39	1	17	3	35
Vogelsberg	34	1	21	3	36
Rhön	24	—	23	9	39
Harz	28	1	6	2	58
Thuringian Forest	37	1	11	2	40
Frankenwald and Vogtland	33	1	18	1	41
IV. Bohemian Highlands					
Fichtelgebirge	28	1	21	2	43
Upper Palatinate (Bavaria)	31	1	18	3	43
Upper Palatinate (Bohemia)	34	1	15	6	43
Bäyerischer Wald	36	1	23	1	32
Böhmer Wald (Bavaria)	20	—	21	2	52
Böhmer Wald (Bohemia)	28	—	20	8	42
Erzgebirge (*Vorlagen*)	51	4	14	1	20
Erzgebirge (Saxony)	39	2	11	1	41
Erzgebirge (Bohemian)	28	1	19	5	47
Elbsandsteingebirge (Saxony)	40	2	10	2	40
V. South German Lands					
Haardt (Pfälzerwald)	26	1	5	—	58
Spessart (with Kinzig Valley)	28	1	12	1	55
Odenwald (with Main Gorge)	34	1	10	1	50
North Black Forest	20	1	13	1	61

Dominantly Meadow and Woodland Areas—*contd*

	Arable	*Gardens and Vineyards*	*Cultivated Grass*	*Rough Grass*	*Woodland*
V. South German Lands—contd.					
South Black Forest	20	1	19	8	46
Swabian Keuper-Lias Plains ..	31	3	26	2	33
Franconian Keuper-Lias Plains ..	42	1	15	1	36
Swabian Jura	38	1	16	5	36
Franconian Jura	43	1	11	4	36
Upper Main Lowland	41	1	18	1	33
Upper Palatinate Uplands	33	1	13	3	41
Bavarian Plateau: Upper Swabia (west of Iller)	43	2	23	1	25
Bavarian Plateau: Iller-Lech Plateau (N.)	37	1	26	1	30
Bavarian Plateau: Iller-Lech Plateau (S.)	30	1	37	2	24
Allgäu *Vorland*	8	—	47	13	21
Upper Bavarian Morainic Uplands	24	1	27	3	31
VI. Bavarian Alps[1]					
Allgäu Alpen	1	—	26	32	23 (15)
Berchtesgaden	2	—	10	8	50 (29)
Upper Inn Valley	5	—	8	28	38 (21)
Lower Inn Valley	16	1	12	10	48 (13)
Salzach Valley	14	—	12	31	37 (6)

[1] In brackets is unused land (*Ödland*).

CHAPTER 10

INDUSTRY AND INDUSTRIAL REGIONS

HISTORICAL BACKGROUND

INDUSTRY IN the Middle Ages was almost exclusively concentrated in the towns and was controlled by the guilds. Every town had a variety of handicrafts, which, of necessity, owing to the lack of transport facilities, catered for the townsmen and for the country folk in the neighbourhood. They were located in relation to the market. The large cities alone were seats of specialized crafts. Western Europe in the later Middle Ages was traversed by overland routes, which were great arteries of transcontinental traffic. On these routes towns developed handicrafts which drew materials from afar and were able to market their goods over wide areas. This trade and industry developed mainly in the later Middle Ages and Nuremberg may be cited as a chief centre of such medieval history. Each of these large cities was at the same time the centre of a populous area, for which it served as a collecting and distributing centre as well as a cultural and political focus.

Already, however, in the Middle Ages, there were certain industries that of necessity were pursued outside the towns, in remote forested and upland districts, though still on a small scale and though the seats of production were small and the actual places in which they were carried on shifted from time to time. These were notably iron- and glass-making, both of which required bulky materials—ore and charcoal for the making of iron, sand and charcoal for glass-making. Metal-working—gold, silver, copper and tin—also resulted in the growth of small isolated mining communities and small smelting and metal-working establishments. Prospectors and workers were drawn into the central highlands, well above heights of 2,000 feet, that was the upper limit of rye cultivation and therefore lay above the limit of normal crop cultivation.

These conditions were further accentuated during the fifteenth and sixteenth centuries. The textile industries began to be carried on in the homes of the peasantry in the countryside in Germany, in Flanders, in northern France and in England, where they enjoyed freedom from the restrictions of the guilds. Such industries were encouraged also in areas where the law of divided inheritance caused the sub-division of holdings and left the individual with a piece of land inadequate to meet the needs of

his family. The long winter months also afforded time to carry on a craft in the quiet of the peasant's home. Metal-mining failed with the appearance of gold and silver from the New World. The iron and glass industries began to take on a more permanent character, especially when running water began to be used to drive the hammers in the forested upland that provided the charcoal. Metal-working and glass-making were similarly localized.

Especially important in the seventeenth and eighteenth centuries was the further development of peasant handicrafts, notably the textile industries. This was due to the encouragement given by the princely rulers to the emigration of Protestants from the towns and especially to the emigration of the Huguenots from France into the German states. The peasant at first used local flax, hemp and wool, and did both the spinning and weaving, his goods being dyed in a neighbouring town. These peasants had farm holdings and their craft was a subsidiary occupation. At an early date these industries depended not upon the local consumer but upon a wider, more distant market, and they were therefore organized through merchants (*Verleger*), who lived in the towns, issued the fibre or yarn, and collected the finished cloth to market it. Frederick the Great encouraged such industries in particular in Saxony and Silesia, in their poor upland districts, where the decline of mining and metal-working meant that a large, skilled labour supply was available. The rulers of the states in the south offered similar encouragement, each fostering new industries within the tariff barriers of his small state. This was the age of Mercantilism of the Englightened Despots.

Thus, as the result of many centuries of development, there was, a hundred years ago, a widespread distribution of industry, in both the towns, which still enjoyed a medieval monopoly, and in the countryside, especially in the upland districts. This fact is clearly reflected in the density of population at this time (p. 107). The chief seats of industry and the areas with the highest densities of population were situated in the uplands along the northern border of the Central Uplands in the Sudetes, the Erzgebirge, Fichtelgebirge, Thuringian Forest, Harz, Weser uplands, Sauerland, Eifel, the Sieg valley, and, in the south, the Black Forest, the Vosges, and the Franconian Jura. The Siegerland, for instance, in the early nineteenth century, had stamping mills, charcoal-burning furnaces, tilt hammers, all using water power and exploiting the local iron ores. The same conditions were found in the Ruhr valley proper in the Sauerland long before the development of the coal-field to the north of it, and that now bears its name.

The introduction of machinery in the early nineteenth century resulted in the increased use of running water, especially in the textile industries. But the craftsman held the field until the third quarter of the century.

In the middle of the century virtually all the looms for the weaving of flax, wool and cotton were hand looms owned by peasants for whom weaving was a subsidiary occupation. The peasant craftsmen and the master craftsmen and the journeyman and apprentice characterized German industry until 1870. The spread of the factory and of steam power was slow until 1870. The weaver held his ground longest, since yarns were required in ever-increasing quantities and could be obtained cheaply from England. Yarn was imported and woven in small power-driven workshops. The small progress of steam power and of large-scale production is evident in the very small production of coal in 1860 (12 million tons).

The last seventy years have witnessed epoch-making changes in the character and structure of industry. The Thomas-Gilchrist process, invented in 1878, permitted the use of the phosphoric ores of Lorraine for the production of steel. Big advances were made in the technical side of iron and steel production, reducing the amount of fuel needed for making coke and smelting the iron. The production of lignite forged ahead. Briquetting permitted the fuel to be marketed over a wide area. The distillation of both coal and lignite resulted in the growth of chemical industries, and the latter, together with the salts that occur in the vicinity in central Germany around the Harz, resulted in the growth of a great chemical industry. Finally, electricity is a discovery of the 'eighties, and power, generated in power plants, driven by coal or lignite or water, can now be distributed over long distances so that industry can be more widely distributed.

THE CARTEL IN THE HEAVY INDUSTRIES

Concentration of industry in a few hands has been a striking feature of the economic development of modern Germany. The process of horizontal integration began in the Ruhr in the 1850s and vertical integration in the 1890s. It was well developed by 1914 under the leadership of Krupp, Thyssen, and Stinnes. No attempt was made by the Allies in 1919 to break down these syndicates. The process was, indeed, encouraged by the loss of the great plants in Lorraine, which were mostly owned by German firms, and then by the runaway inflation of 1920–3, that permitted the big concerns to buy out the small ones, and to amalgamate. This was also fostered by foreign investment (especially American) which permitted construction on a lavish scale. Thus, at the peak of this process of cartelization in 1926, several large steel concerns combined to form the *Vereinigte Stahlwerke*, with headquarters at Düsseldorf, which represented one-half of the total iron and steel production of Germany. Six chief German concerns,

all Ruhr concerns, accounted for 80 per cent of the crude steel output and 35 per cent of the coal output. In all, indeed, twenty firms controlled over 90 per cent of the coal output of the Ruhr in 1937. The Krupps concern, that began back in 1811, expanded greatly in the opening years of this century, and the whole Essen plant was turned over to armaments production in World War I, though much of it was destroyed by the Allies thereafter. The whole concern was actually on the verge of bankruptcy in 1927, when it obtained a new lease of life through credits received from American and Dutch bankers. It again became a chief seat of armaments production under the Nazis and has been considerably dismantled by the British military authorities.

The cartel has dominated the coal, steel, chemical and other industries. The big coal cartel, the *Rheinisch-Westfälisch Kohlen Syndikat*, was established, with its headquarters in Essen, in 1890, to combat overproduction and control prices. This concern not only survived World War I, but formed the nucleus of the new Reich Coal Federation, that, among other things, fixed maximum prices. The coal industry was also controlled by a Reich Coal Council. The coal concern mentioned above extended to include the Aachen and Saar producers in 1934–5, so that it controlled 80 per cent of the pre-war German production. It fixed prices, organized marketing, and distributed orders to mining companies. Cartels in the iron and steel industry also date from the 'nineties and were grouped into one concern, the *Stahlwerksverband*, with headquarters at Düsseldorf, in 1904. By 1929 it had absorbed all German production. Further centralized organization, effected by personnel within the industry itself, was carried out by the Nazis in the 'thirties. The chemical industry really began with the invention of the first synthetic drug in 1888 and the opening of research laboratories at Elberfeld in 1896. The first syndicate was formed in 1904 and was expanded in 1925 to become the great I. G. Farben or *Interessengemeinschaft Farbenindustrie Aktien Gesellschaft*, with its headquarters in Frankfurt.

German industrialists were also active in international cartels for coke, steel, nitrogen, rayon, and many others. The first international steel cartel was concluded in Brussels in 1926 by industrial groups from Germany, France, Belgium, Luxembourg, and the Saar. It was motivated by the fear of excess production, and aimed at restriction of production and maintenance of prices. The British Steel Federation became a member of this group in 1935, and United States producers joined certain of the sub-cartels for tin plate, rails, and tubes, and in 1938 the Steel Export Association of America entered into an agreement with the International Steel Cartel. This structure collapsed with the outbreak of war. The Allied governments have attempted to break

down these cartels and disperse both ownership and organization of the coal, iron and steel, and chemical industries. The combines are to be replaced by a large number of independent concerns that are expected to compete with each other in the domestic market, and the military authorities exercise an overall control. The Schuman plan is an attempt to re-establish closer economic union of the steel producers of western Europe on a different basis. It still remains to be seen how far these policies will succeed in terms of efficiency of production in the best interests of producers and consumers.

Industrial Concerns of Germany in 1939 (*Statistisches Handbuch von Deutschland*, p. 244)

	No. of Concerns	*No. Employed*
Mining	2,179	725,017
Stone and Earths	38,140	674,920
Iron and Steel	3,621	549,778
Metals	2,652	149,771
Iron, Metal and Steel Goods	147,993	1,102,648
Machinery and Vehicles	63,212	1,811,908
Electro-technical	32,297	639,633
Optical and Precision Instruments	27,240	227,912
Chemicals	12,036	476,496
Textiles	140,275	1,278,976
Paper	22,969	294,682
Printing and Publishing	28,675	239,822
Leather and Linoleum	32,881	163,636
Rubber and Asbestos	2,680	77,989
Timber and Woodworking	206,996	889,298
Musical Instruments	15,679	62,140
Food and Drinks	320,407	1,539,576
Clothing	501,994	1,215,632
Building Trades	244,195	2,217,648
Water, Gas, Electricity	11,226	215,990
TOTAL	1,865,347	14,533,472

The purpose of this chapter is to examine the character and location of industries. Reference is made throughout to the pre-war situation. Industry is located in terms of a variety of factors—raw materials; transport facilities for the assembly of such materials and the distribution of the manufactured product to a further producer or to the consumer; or the availability of an adequate labour supply. There is a remarkable strength of persistence in any going concern in the face of changing conditions that affect its fortunes. Especially does this apply to industry in which concerns established in the past keep up with new conditions by adapting

their organization, equipment and skills to new, though related, lines of production. Especially does this apply to skilled fabricating industries. The presence of a great reservoir of labour is also an invitation and stimulus to the growth of industry. This has been particularly true, for instance, of the varied industrial history of the densely peopled though poverty-stricken lands (from the standpoint of crop-growing) of Saxony. Finally, we should note that while industries may be located for reasons either of accessibility to bulk materials, or for reasons of historical development and labour supply, the majority of industrial activity is located with immediate reference to the consumer. The biggest range of industries and most of the industrial workers are located proportional to the distribution of population.

Industries by Political Divisions in 1939 (*Statistisches Handbuch von Deutschland*, p. 245)

	No. of Concerns	*No. Employed*
Bavaria	251,970	1,580,277
Hohenzollern Land	3,370	15,043
Württemberg ..	109,414	760,390
Baden	71,839	551,222
Hessen	41,728	290,674
Hessen-Nassau ..	72,383	518,502
Bremen	8,424	120,153
Saarland	12,221	199,283
Rheinprovinz ..	175,335	1,805,792
Westfalen	120,820	1,226,570
Lippe	6,615	33,545
Schaumburg-Lippe	1,539	9,214
Hannover	89,197	572,246
Braunschweig ..	14,464	128,670
Oldenburg	11,992	68,186
Hamburg	35,383	349,122
Schleswig-Holstein ..	37,069	239,317
Mecklenburg ..	18,083	113,929
Brandenburg ..	67,036	542,155
Prov. Sachsen ..	90,272	780,558
Anhalt	8,846	104,613
Thüringen	68,245	468,005
Sachsen	234,653	1,602,985
Berlin	115,386	1,176,863
Schlesien	108,948	791,715
Pommern	48,365	257,961
Ostpreussen	41,750	246,472
TOTAL	1,865,347	14,553,472

The industries of Germany in 1939 are tabulated above with respect to the number of concerns in each group and the number of people employed in them, together with the proportions for the Reich as a whole. It will be seen that the iron, steel and metal industries employ over a quarter of the total employed population, and the textile and clothing industries, if combined, employ one-fifth. These two groups of industries together account for about one-half of the industrial population. Mining and quarrying account for 12 per cent and the food and drink industries, together with the building trades and water, gas and electricity undertakings, for about a quarter of the total. Of all these industries, about one-third of the people are in industries that are highly localized in particular places either on grounds of early pre-industrial development or of the bulky materials which they produce. The remaining two-thirds are related to the distribution of population and transport facilities.

We may now turn to consider the location of the major industries of Germany. These are based, above all, upon the production of natural resources, especially of fuel and minerals, and to these we shall first give attention, with emphasis on the geographical location of each group.

POWER (Figs. 35 and 36)

Coal production reached 150 million tons in 1928 and a peak of 190 million tons in 1943. The chief seat of production is the Ruhr district. Three-quarters of Germany's (1928) bituminous coal came from this area (115 millions). A short quarter came from Upper Silesia (20 millions) and the Saar (10 millions) together. Both the Silesian and Saar fields are lost to Germany. There are several small fields scattered along the northern border of the Central Uplands, linked up with the chain of fields that extends west from Upper Silesia, through the Ruhr to central Belgium and northern France. The chief of these are: Aachen in the extreme west (5·5 millions), Waldenburg in a hill-enclosed basin in the Sudetic uplands in western Silesia (5·5 millions), the small Zwickau and Lugau-Oelsnitz fields in Saxony (4 millions), and several small fields near Osnabrück and Hanover (under a million tons).

Lignite or Brown Coal production reached 165 million tons in 1928 and a peak of 253 million tons in 1943. Brown coal is a low-grade fuel, intermediate between bituminous coal and peat. Nine tons of lignite equal in heat value two tons of bituminous coal. It occurs in deep measures near to the surface beneath the rich farmlands on the northern edge of the Central Uplands. It is obtained from vast quarries, and the material is rid of its water and waste for the production of briquettes; or it is fed direct as a fuel into furnaces for the generation of electricity and for the manufacture of chemicals; or it is distilled by low-temperature

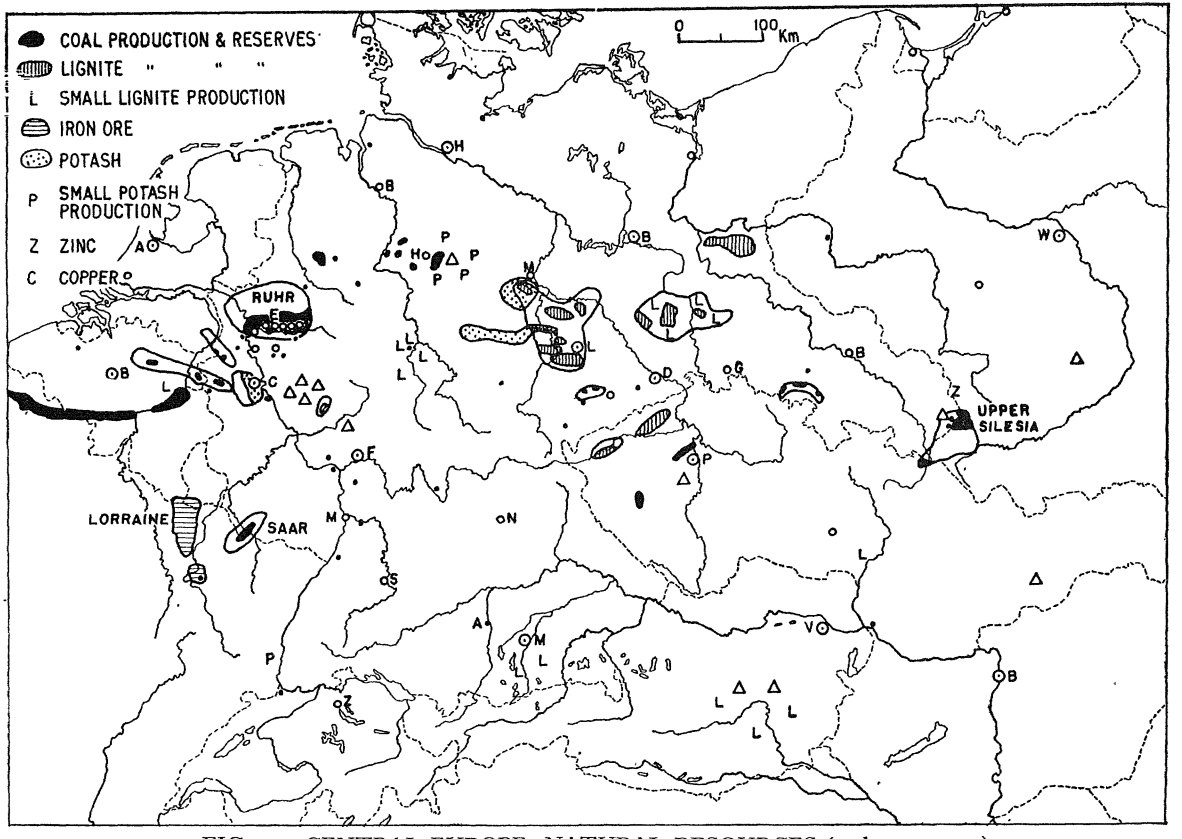


FIG. 35—CENTRAL EUROPE: NATURAL RESOURCES (scale, 1 : 10 m.)

carbonization processes for the production of tar, oil and chemicals. The great advance in the use of lignite has come about during and since World War I and has been responsible for a new industrial revolution in Germany, the importance of which is not generally appreciated. There are two chief areas of production. The first is in the lower Rhineland, in the Cologne Bay on the west bank of the Rhine a few miles from Cologne. It is sufficiently near to the Ruhr to have developed in the closest economic association with it. Nearly 30 per cent of the pre-war production came from this area. The second is in central Germany in the

Coal Production (in millions of tons)

	1913	1938	1947	1949
Ruhr-Westphalia	114·5	127·3	66·3	96·3
Upper Silesia ..	43·8	26·0	?	?
Saar	13·3	14·4	10·5	14·2
Waldenburg ..	5·5	5·3	?	?
Aachen	3·3	7·7	3·2	5·1
Saxony	5·5	3·7 (1937)	2·7	1·9
Others	4·1	2·1 (1937)	—	—

Lignite Production (in millions of tons)
(Deutschland-Jahrbuch, 1949)

	1938
Central Germany ..	83·8
Cologne Area ..	58·4
East of the Elbe ..	49·9
Other areas ..	1·3
TOTAL ..	193·4

bay of lowland in whose centre is Liepzig-Halle. The field extends from near these cities northwest to Magdeburg and Hemlstedt. Another field lies to the east of the Elbe in Lower Lusatia. This whole area produces about 70 per cent of the total production, with the two main seats in the Halle-Merseburg area (Thuringia and Saxony), producing a good third, and Lower Lusatia a good fifth.

Just over a third of the lignite is used for domestic purposes, nearly a quarter for electricity generation, and about a tenth for the chemical industries. Smaller quantities are used in metallurgical, glass, pottery and textile industries. A great diversity of uses accounts for another fifth of the production.

Oil. Germany has a production of crude oil of nearly a million tons. The production increased rapidly after 1929 (100,000 tons)

through the sinking of new wells in the district of Nienhagen around Hanover and Brunswick. (The first well was sunk near Celle in 1859.) This area yielded nine-tenths of the production, that reached about one million tons in 1942. The annual consumption of oil before the war reached 7 million tons. Five million tons were imported, almost all of which was refined in the Hamburg district. The balance of 2 million tons was provided by production of synthetic fuel. This industry was further developed in Germany than in any other country. The fuel is obtained from coal and lignite by hydrogenation and other processes. The big plant of the Leunawerke was established in 1927 for this purpose. During the Nazi regime production experienced a tremendous increase from half a million to three and a half million tons in 1941. The Bergius hydrogenation processes use coal, lignite and tar oil as raw materials, and the Fischer Tropsch synthetic plants use coal and coke. Low-temperature carbonization obtains gasolene and diesel oil from coal. About twenty synthetic oil plants were in existence at the outbreak of war and since they consume enormous quantities of raw materials they are situated near to the latter. The hydrogenation plants—above all the Leunawerke—are near the lignite fields of the middle Elbe basin. The Fischer Tropsch plants, that use coal and coke, are situated on the Ruhr coal-field. All except one are to be dismantled.

Electric Power. Germany has the greatest installed capacity and production of electricity of all the countries of Europe. There are over 7,000 generating stations, but under 300 of these account for four-fifths of the production. Of the total production nearly 60 per cent was due to publicly owned concerns. Private electricity concerns are concerned with the electro-chemical and electro-metallurgical industries, coal and lignite mines, and iron and steel works.

Four-fifths of this total production was derived in 1937 from coal and lignite and a seventh from water power. Lignite was a slightly more important source than coal, accounting for 40 per cent of Germany's total production, whereas coal accounted for 36 per cent of the production. The power plants fed by coal are situated in the seats of industry and population where the power is consumed, for coal can be relatively cheaply transported. Lignite, on the other hand, is very bulky with low heat value, and it is friable when dry, and difficult to transport. In consequence, the lignite-consuming plants are situated at or near the lignite fields and then electricity is transmitted to the consumers by cable. The hydro-electric stations are tied to the seats of water power and are situated mainly in south Germany.

Thus, the lignite field of Ville (west of Cologne) and the Leipzig-Halle field are the two chief seats of lignite for the electricity plants. The coal-fed plants of the Ruhr and Saxony respectively are intimately

related to these two. The hydro-electric plants are in two groups, one in the upper Rhine, the other in the Bavarian Alps. The many other plants are situated for the most part in the towns and depend upon transported coal.

The Ville and Leipzig-Halle areas include the greatest of Germany's plants, and in the latter in particular they are closely associated with chemical works, aluminium smelting works and synthetic oil plants, so as to form a widely spread, though closely knit industrial complex. Two large stations on the German Upper Silesian coal-field were developed in connection with synthetic oil plants during the recent war.

The hydro-electric plants on the upper Rhine are small (under 100,000 kilowatts) and several are operated jointly with Switzerland. They are usually formed by damming the river. Though the power is for general use, the chemical works at Waldshut and the aluminium works at Rheinfeld are supplied. Bavaria has three main plants that supply the German railways, Munich, and local aluminium and chemical works. Other plants in Germany lie on the Ruhr (Herdecke based on the Hengsteysee, formed by damming the Ruhr), at Waldeck (formed by the dam on the Eder near Kassel), and on the Saale, where there are four stations.

We may note the distribution and capacity of the chief plants on the eve of World War II. Nearly 90 per cent of the production was due to the industrial consumers—the chief being synthetic oil plants, mining and the iron and steel industries, and aluminium and calcium carbide industries. Domestic consumption accounted for 8 per cent and traction for about 4 per cent.

METALS

Iron Ore. Germany was a chief producer of non-ferrous and iron minerals in the Middle Ages and after. But they occurred in small quantities in the upland areas and production waned and virtually ceased in the last centuries. Iron is the basis of all modern industry, but in Germany it only occurs in small quantities in scattered areas. The seats of the early iron working were in the Siegerland, the Mark, the Saar, the Ore Mountains (*Erzgebirge*) and the Thuringian Highland. Most of these have ceased production in the face of modern competition. The chief areas of modern production are the Sieg, Lahn and Dill valleys in the Rhine Plateau, on the east side of the Rhine and south of the Ruhr industrial area. Here today there are still iron-working plants as the direct lineal descendants of their pre-industrial predecessors. A further area was discovered during the nineteenth century in the Ilsede-Peine district between Hanover and Salzgitter and here the new Göring works were established, though they have been largely dismantled. Smaller supplies are drawn from Bavaria and the Vogelsberg.

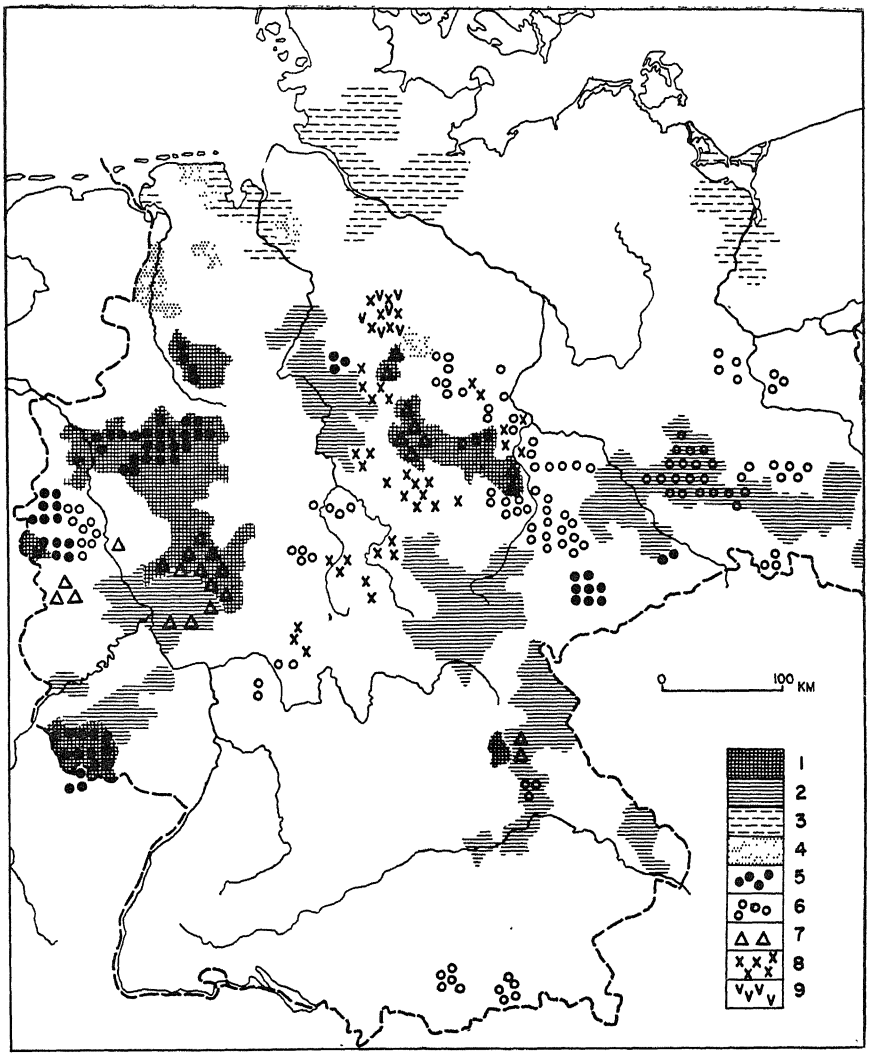


FIG. 36—GERMANY: EXTRACTIVE AND HEAVY INDUSTRIES (pre-war) (*from Von G. Crispendorf*) (scale, 1 : 6 m.)

Based on occupations by *Kreise*.

1. Heavy industries
2. Quarrying of stones and earths
3. Coastal (port) industries
4. Peat
5. Coal
6. Lignite (or brown coal)
7. Iron ore
8. Salt
9. Oil

Before 1918 Germany's iron supplies were drawn from German Lorraine, which produced some 20 million tons annually, and Germany was 70 per cent self-sufficient. Since 1918 Germany has been 25 per cent self-sufficient. In order to diminish this dependence the Nazis increased production, mainly from the two areas noted above, to some 12 million tons in 1938, although the iron content only reached 3 million tons. The proportion of domestic production in 1937 amounted to a third in Siegerland, a fifth in Peine-Salzgitter, a tenth in the Lahn-Dill area, 8 per cent in the Vogelsberg, and 8 per cent in Bavaria. In 1937 Germany imported 20 million tons (half from Sweden, 15 per cent from Lorraine) as well as using nearly 10 million tons of scrap iron annually from the country and about 1 million from abroad. Total production in 1947 was 4·5 million tons, but rose to 11 million tons in 1950.

Iron Ore Production 1946–7 (*thousands of tons*)
(from *Deutschland-Jahrbuch*, 1949, p. 169)

British Zone (1947)		*American Zone*		*French Zone* (1946)	
Salzgitter	1,337·0	Nordbayern	82	Siegerland	191
Ilsede	503·0	Oberpfalz	294	Baden	56
Rest of Harz Foreland	351·0	Württemberg	190	Lahn	14
Wiehengebirge	4·8	Lahn-Dill	296		
Wesergebirge	215·0	Waldeck	24		
Sauerland	18·0	Vogelsberg	360		
Siegerland	190·0	Taunus-Hunsruck	23		
TOTAL	2,618·8	TOTAL	1,269	TOTAL	261

Non-ferrous Metals are produced in very small quantities and the bulk is imported. Copper is mined in the Mansfield district at the eastern end of the Harz, but home production of about 25,000 tons accounts for only 15 per cent of the consumption and large quantities are imported, with Hamburg controlling half of the refining capacity. Lead and zinc, that normally occur in combination, are mined in the Harz, Upper Silesia and in the Eifel Plateau, and Germany ranked as the greatest producer of zinc in Europe and was second to Yugoslavia in lead production. Production of both was stimulated by the Nazis, but home supplies of over 2 million tons of ore were inadequate to meet the demand and she imported considerable quantities. Through the loss of Upper Silesia by the Versailles Treaty, Germany lost 60 per cent of her zinc production and 23 per cent of her lead. Smelting plants, producing about 200,000 tons of zinc and lead each, are situated near the ore mines and on the coal-fields. The chief are the Busbach plant near Aachen, the Braubach plant at the

confluence of the Lahn and the Rhine, and Oker and Langelsheim near Goslar. Consumption of lead and zinc was about 300,000 tons each in 1938.

Tin resources are negligible, and imports of ore in normal years amount to nearly 10,000 tons, and of metal about 10,000–15,000 tons. Duisburg and Essen do almost all the smelting. A third is used for making tin-plate. Aluminium production increased in the 'thirties (to 200,000 tons), and imports of bauxite, which Germany lacks, increased. In 1938 Germany was responsible for over a quarter of the world production of aluminium (more than the United States) and imported from Yugoslavia and Hungary. Smelting is effected by electrolysis so that the reduction plants are situated near the power plants. Magnesium, that is used as an alloy with aluminium, is obtained by electrolysis from molten magnesium chloride that in turn is derived from magnesite. This industry is centred on the potash deposits of Stassfurt, where magnesium chloride is extracted as a by-product in the preparation of potassium chloride. This area is responsible for about a half of the world production. Nickel deposits are negligible, the only producer being Frankenstein near Breslau (1,000 tons), so that her pre-war consumption of 10,000 tons of ore had to be imported. Germany produced before the war 7 per cent of the world's manganese, 4·5 per cent of the lead, 9 per cent of the zinc, 1·3 per cent of the copper ores. In 1938 Germany produced 3·4, 12·4, 11·3, and 2·2 per cent of the world smelter production of copper, zinc, lead, and aluminium respectively.

MAJOR INDUSTRIES (Fig. 37)

Iron and Steel Production. The vast range of the iron and steel industries falls into four main groups—iron and metal production, iron and steel wares, machinery and vehicles, and the manufacture of electrical, optical and other precision instruments. All these industries depend in varying degree on the production of metals, ferrous and non-ferrous, at the furnace, and it is with the production of iron and steel that we shall commence.

Germany was second only to the United States as a producer of iron and steel. The peak of her pre-war production came in 1938 with an output of 18 million tons of pig-iron and 22 million tons of steel. This supremacy was due to the great resources of coking-coal, whereas nearly all her iron ores were imported. The iron ore situation has been noted. The industry was built up before World War I on the basis of the free exchange of the coke and coking-coal of the Ruhr for the iron ore or pig-iron of Lorraine and Luxembourg, and the Saar. The two areas had a normal pre-war output of about 10 and 15 million tons of steel each.

In the last thirty years the German industry in the Ruhr has been dependent almost entirely on imported supplies, drawn largely from Sweden, up the Rhine and up the Dortmund-Ems canal. Four-fifths of

Germany's crude iron and steel is drawn from the Ruhr, while the secondary areas are located near the ore-fields of the Siegerland, Lahn-Dill, Upper Silesia, and the Ilsede-Peine district. The Ruhr enjoys the supreme advantage of transport by the Rhine. Upper Silesia suffers from the fact that its coal is not well suited for coking and, moreover, it has negligible quantities of ores, as well as inadequate transport facilities for the conveyance of coke and ore by water. The Oder has recently been brought into direct contact with the field by the opening of the Adolph Hitler canal from Kosel, but the Vistula is not navigable to the Polish field. Secondary smelting centres are found in the northern ports of Hamburg and Bremen, using imported ores and either Ruhr or English coal, and these plants supply their shipbuilding industries.

Reference must here be made to the production of coke. Coke is almost entirely derived from the Ruhr coals, and production reached the abnormal figure of 43·5 million tons in 1938. Three-quarters of the production normally came from the Ruhr and only 7 per cent from the Saar, and 4 per cent each from Aachen and Upper Silesia. One-half of this coke production was consumed by the iron and steel industry, and a third for domestic heating. Exports reached nearly 10 million tons in 1938. The ores are carried to the coking-coal areas of the Ruhr, Saar, and Upper Silesia; or the coke is carried to the ore-mining areas, since, as in Lorraine and other minor German areas, the ore is low-grade and the wagons that carry the ore to the Ruhr can return filled with coke.

After World War I, Germany lost 80 per cent of her iron ore, 40 per cent of the pig-iron output, 40 per cent of the crude steel output, and 30 per cent of the rolling mills, by the loss of Lorraine, the Saar, and the withdrawal of Luxembourg from the German customs union. The rehabilitation was effected by subsidizing domestic production of iron in the Siegerland, and by importing larger quantities, favoured by low freight rates on the railways, and subsidies to the manufacturers. New equipment and vertical integration also helped to bring production to normal during the 1925–9 boom. Production fell to an inter-war minimum in 1932 with an output of 3·9 million tons of pig-iron, 5·8 million tons of crude steel. But after 1933 production leaped up far beyond the more normal level of production in the middle 'twenties. In 1938 pig-iron production was 18 million tons, steel 22·5 million tons.

Heavy Engineering Industries. The blast furnace, the steel converters, and the rolling mills, are tied down to sites where the coke or the iron ore is produced or where it can be cheaply assembled. The end products are plates, sheets, rails, girders, wires, that is, semi-finished products (or, in the earlier phase, steel ingots and steel castings) which are shipped for further manufacture and finishing processes elsewhere.

In general, these heavier engineering industries are highly located

in the Ruhr. The older seats of iron and metal-working have to some extent maintained themselves, partly by using local iron, partly by importing it, and also by importing fuel. They have concentrated on the production of goods of high value and variety that demand relatively little material but a high degree of skilled labour in their production and considerable enterprise in their management. Thus, the old workshop industry of the *Bergischesland* appears today in the cutlery-working district of Solingen and Remscheid, and the Sauerland (or the *Märkischesland*) retains its speciality of small iron wares, such as wire products and nails, bolts and screws. Varied iron-working industries of a similar character, notably the production of ironmongery, are carried on in Thuringia and Saxony.

The great bulk of the fabricating industries, however, are carried on near the seats of iron and steel production or in the big cities. Thus, shipbuilding and marine engineering are concentrated in the northern ports, especially Bremen and Hamburg, and in 1938 these ports launched 15 per cent of the world's new shipping tonnage, second only to Britain's contribution of one-third. Over three-fifths of this German tonnage was launched in the estuaries of the Weser and the Elbe. Hamburg is the giant and the Deutsche Werft A.G. had the largest shipping output of any single concern in the world in 1938, and the yards of Blohm and Voss are world renowned. Marine engineering is carried on near or within the shipyards, or at some inland centres where special marine engines are produced. The production of locomotives and railway stock is located at the great railway centres as well as on the Ruhr. The plants at Kassel, Essen and Berlin are the chief. Rolling-stock production is more widely distributed among the bigger cities. Heavy machinery (such as furnaces and rolling-mill installations, oil and gas engines, turbines and boilers) is mainly manufactured in the lower Rhinelands, especially on the Ruhr, but plants are also found in the large cities. The engineering industries of the Ruhr are thus particularly concerned with the equipment of the basic industries of the coal mine, the furnace, the rolling mill, and the railway. The production of agricultural machinery is located in contact with the main consuming areas, namely, the chief agricultural areas in the middle Elbe basin (Magdeburg, Hanover and Leipzig), Silesia (Breslau), the lower Rhinelands (Düsseldorf and Cologne); and a few establishments are located in the Ruhr itself.

Light Engineering Industries. The above groups of iron and steel industries are, in the main, the "heavy engineering industries", that are located at the source of the raw material or where these can be cheaply assembled and the end products cheaply marketed. They fall mainly in the category of "iron and steel" in the German census classification as summarized on p. 231. The other three main groups so listed are

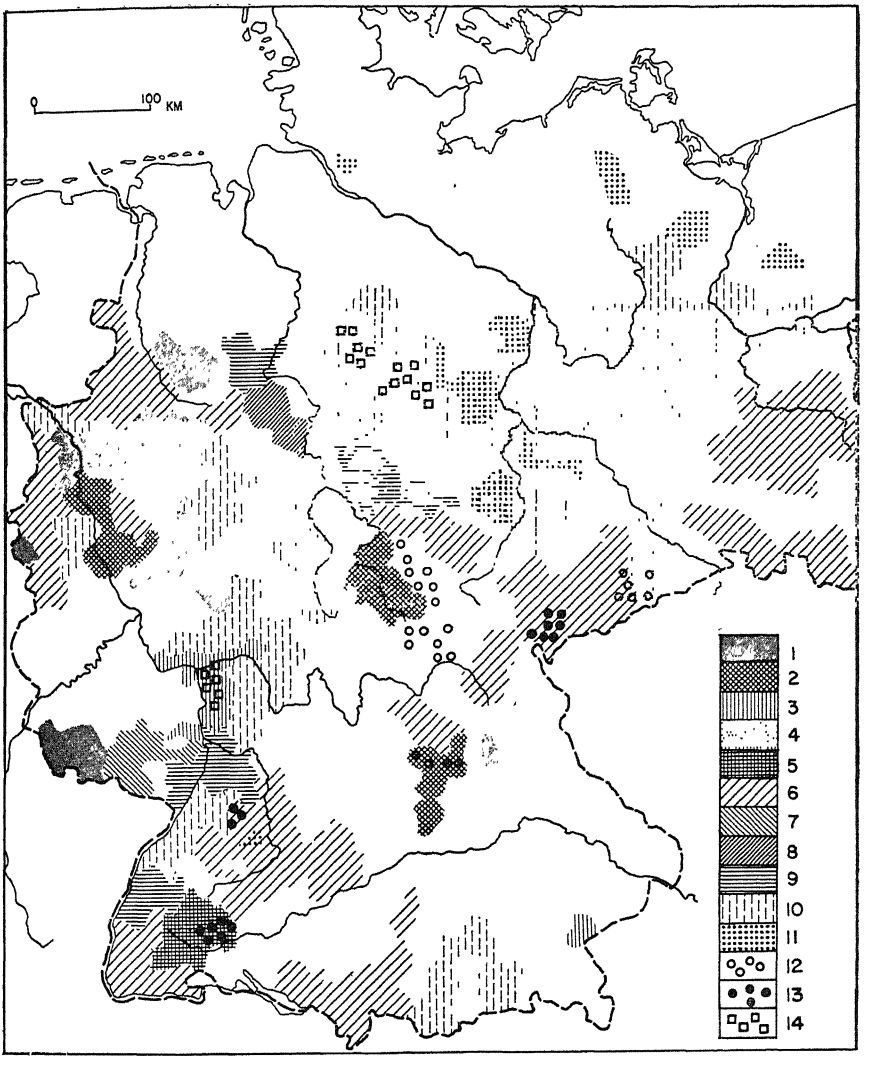


FIG. 37—GERMANY: MANUFACTURING INDUSTRIES (pre-war) (*from Von G. Crispendorf*) (scale, 1 : 6 m.) Based on occupations by *Kreise*.

1. Heavy Industries
2. Iron and metal working
3. Chemicals
4. Electrical
5. Optical, etc.
6. Textiles
7. Leather
8. Wood and paper
9. Tobacco
10. Mixed industries
11. Sugar
12. Toys
13. Musical instruments
14. Food preserves

the manufacture of metal goods; of machinery, apparatus and vehicles; and electro-technical and precision instruments. While the machinery and electrical industries are mainly concentrated in large establishments, iron and metal goods are produced in numerous smaller concerns, and include a good deal of handicraft work carried on as domestic and small workshop industries. The machinery industries are widely distributed in big centres in relation to the regional markets. The electrical industries are almost entirely concentrated in a few large cities, the chief being Berlin. The iron and metal-working industries are chiefly concentrated in Rhineland-Westphalia (in fact, over a quarter of all workers) and in Berlin. The electrical industries, the production of machinery, apparatus and vehicles, and iron- and metal-working, accounted for three-fifths of the workers of Berlin. The *Land* of Saxony (as opposed to the Prussian province of that name) was the third area of concentration of these skilled finishing industries.

The production of machine tools (which made a substantial contribution to Germany's pre-war exports) demands skilled labour and, unlike the heavy engineering industries, just noted, that are markedly localized on the coal-fields, these are found in the great reservoirs of labour in the big cities and in the older mining and metal-working areas in the central highlands where the traditions of skilled craftsmanship are maintained and the labour is available. This applies especially to the many small towns in the Sauerland, south of the Ruhr, and to the Thuringian Highlands.

The production of motor vehicles increased by leaps and bounds after 1933, and in 1938 exceeded that of France and was not far behind Britain. The production was controlled by a few firms and located in large plants in a few centres. Outstanding was the Opel plant at Rüsselsheim between Mainz and Frankfurt, that supplied two-fifths of the cars and a third of the commercial vehicles in Germany in 1938. The second great firm was the Daimler-Benz concern, with plants, producing aircraft engines and armoured vehicles, at Stuttgart, Berlin, Mannheim and Gaggenau near Karlsruhe. The chief Ford works was at Cologne and the Adler works was at Frankfurt. The *Volkswagen* was made at Fallersleben. Other plants were situated in other cities. Production of motor-cycles also increased tremendously, with chief centres at Nuremburg, Neckarsulm (near Stuttgart) and Schweinfurt.

The *electrical industries* were largely controlled by the Siemens combine and the Allgemeine Elektrizitäts Gesellschaft. Both had their chief establishments in Berlin, although plants are situated elsewhere in Germany. Optical and precision instruments are produced in small factories with highly skilled labour and plenty of it. They are produced mainly in the old-established industrial areas of the central highlands, where they have concentrated in large measure in factories in the towns during the

last seventy years. Thuringia, Saxony, Württemberg and Baden are outstanding, although, once again, Berlin has attracted a large quota of production in the last decades. The best-known centre is that of the Carl Zeiss works at Jena, where social welfare of the workers was a marked feature of its organization. Dresden is also an important centre.

The manufacture of clocks is still pursued in the Black Forest, especially in factories in the towns of Pforzheim, Villingen, Schwenningen and Schramberg. There are many firms in the small towns of Bavaria with Munich and Nuremberg as the outstanding centres.

The Chemical Industries. Though employing a small number of workers in relation to other industries, these are of the greatest importance in the economic life of an industrialized country. Their development has been synonymous with the advance of modern chemistry and extends over less than a hundred years, and did not really take an effective start until the 'seventies. The two chief stimuli to progress were the manufacture of artificial fertilizers from potash salts and coal, based on the use of sulphuric acid, and the production of artificial dyes through the distillation of coal tar. The production of photographic materials and pharmaceutical apparatus followed in the 'eighties. The opening of the twentieth century witnessed the extraction of nitrogen from the atmosphere, and epoch-making discoveries have since been made in the further treatment of coal and lignite for the distillation of oils and a great range of by-products. The heavy chemical industries, that are concerned with the large-scale production of bulky chemical products from bulky raw materials, are tied down rigidly to the location of the latter or where they can be assembled by water. Water is also consumed in tremendous quantities by these industries and a river site is essential for many of them. Thus, there are three main areas with modern mammoth chemical plants—the lower Rhineland, both on the coal-field and on the Rhine front; the middle Elbe basin (or Central Germany), where the plants are located in relation to either the potash salt mines or the lignite quarries; and the middle Rhine area on the river front, like the great plants at Ludwigshafen and Mannheim and near Frankfurt, where materials are assembled and large quantities of water needed in the processes are readily available. The light chemical industries, that produce a tremendous range of consumer goods (as opposed to the production goods produced by the heavy industries), such as pharmaceutical products, photographic supplies, perfumes, soaps, etc., are not tied down to their raw materials by consideration of transport costs, so that they are fairly widely distributed, and are located for the most part in the towns.

Germany is a large producer of both rock salt and potash salt. She is responsible for 60 per cent of the world production of the latter that forms a primary source of her great chemical industries and especially of the

production of fertilizers. These salts occur in the New Red Sandstone rocks of central Germany and are mined in three main areas in the middle Elbe basin—namely, Stassfurt, Eisenach, Nordhausen and Magdeburg. The beds overlie beds of common salt and are mined in shafts. The salts are refined for use as fertilizer or used for the preparation of potassium salts, that are used in the manufacture of glass, fertilizers, explosives, soap, etc. Production more than doubled after 1933 and reached 16 million tons in 1938. Common salt is mined not only around Stassfurt, but also at Reichenhall near Salzburg, at Schöningen, and near Lüneburg. The greater part of the salts are refined on the spot. About a million tons are used as fertilizers and over half a million tons are exported to the neighbouring countries of Denmark, the Netherlands and Belgium.

Sulphuric acid is the chief inorganic chemical used in these industries. It is derived mainly from pyrites, some of which is produced in the country, though over a million tons were imported annually. Small quantities of zinc blende and galena are also used for the purpose. Most of the plants producing this acid are situated in the lower Rhinelands, but the largest are at Leverkusen, Höchst (near Frankfurt-on-Main) and Mannheim-Ludwigshafen, the last producing about a fifth of the national output. The middle Germany area also produces about a fifth of the output. The Leuna (near Merseburg) and the new Elsnig plant may be given special notice here.

Salts are the basis of the production of alkalis—that is, of potash, caustic potash, and soda ash. The sodium compounds are used for the making of soap and for washing and bleaching textiles and in the manufacture of glass and of cellulose products. The production of caustic soda and soda ash was greatly stimulated by the growth of the cellulose industries, notably the production of rayon. Soda ash is produced at two great plants at Bernburg, near the Stassfurt salt area, and at Rheinberg, near the coke supplies of the Ruhr. Caustic soda is produced by electrolysis in plants in various parts of the country, the chief plants being at Bitterfeld, Höchst and Leverkusen.

The extraction of nitrogen from the air was encouraged during World War I when Germany was cut off from her sources of imported nitrates in Chile. Many products are derived from the distillation of coal. Ammonia is obtained in the burning of coal for use in the chemical industries. Lignite is also used in place of coal, so that these industries again are tied down to the coal and lignite fields. The Leunawerke and the I.G. Farben plant at Oppau at Ludwigshafen accounted for four-fifths of the production of synthetic nitrogen. Other plants are on the Ruhr coal-field. The Leunawerke produced alone about two-thirds of the total. One million tons of synthetic ammonia were produced by the fixation of atmospheric nitrogen and were used mainly as fertilizer.

The distillation of coal tar and lignite is the basis of another range of chemical industries. Low-temperature carbonization for the production of fuel oils is used mainly on lignite. High-temperature carbonization of coal produces coke or coal gas, and the coal tar is distilled further to yield both heavy and light oils. The treatment of these yields dyestuffs, pharmaceutical products, explosives, etc.

It will be clear that the majority of the distillation plants are situated on the Ruhr coal-field, where the coke is made, though many plants are found in the big cities in connection with the gas works. The dyeing industry was controlled by the I.G. Farben, with its chief plants at Ludwigshafen, Uerdingen (near Krefeld), Offenbach (near Frankfurt-on-Main), and Leverkusen. Other plants are at Höchst and Griesheim, both between Mainz and Frankfurt. Plastics and cellulose, paint and varnishes were made from tar acids through the distillation of coal and lignite. The basis of these industries was the synthetic resins that were made by the big chemical syndicates, although the fabricating industries are carried out in numerous small plants scattered throughout the country.

The Rubber Industry before the war was based on imports of natural vegetable rubber that reached 100,000 tons in 1937. The chief centre is Hanover, but other plants were situated in the big cities. One-half of the production of rubber tyres was drawn from the Hanover district alone. Miscellaneous rubber goods were produced in many factories at scattered locations. The production of artificial rubber was still in the experimental stage at the outbreak of war but made considerable progress during hostilities, the chief plants being at Schkopau, near Leipzig, and Hüls, near Cologne.

Textile Industries. The textile industries come second to the iron and steel group according to the numbers employed, if one includes the clothing industries as well. The textile industries proper, however, that produce yarns and cloths, account for only one-tenth of the industrial workers. They appear as the dominant industries in three areas. The first extends from the Sudetes highland in western Silesia, thence through Saxony west of the Elbe and into northeastern Bavaria, at the town of Hof, and into central Thuringia, at Eurfurt. The second area is in the lower Rhinelands and is contiguous with a similar area across the Dutch frontier at Entschede. The third area is in the southwest in the Neckar basin, the upper Rhine (at Mühlhausen and Freiberg), and between Lake Constance and Augsburg. These industries were well established in these areas before the advent of modern power-driven machinery.

In all these areas the cotton industries were the last to appear but they are now well represented. They were introduced here in the late eighteenth and early nineteenth centuries, fostered by the Continental blockade by the British Navy and took the place of the earlier flax

industry that was then decadent. The three chief areas are Saxony, the lower Rhinelands and Württemburg. The woollen textile industries were first domiciled in the early Middle Ages (before A.D. 1000) in the northwest, in Flanders, Friesland and Münsterland; and in the towns of the southwest, such as Regensburg and Augsburg. Frederick the Great of Prussia encouraged the making of woollen goods in the Sudetes highlands where local wool was used, of which Prussia had an export surplus until the great decline in the numbers of sheep in the middle of the nineteenth century. The chief centres today of the woollen industries are in west Saxony and central Thuringia. In the northwest, the old domestic industry is now concentrated in factories that are mainly located in the small towns of Aachen and Düren. These industries are today of very little importance in the south. The making of linens from locally grown flax, that was formerly so very widespread as a domestic craft, disappeared in most districts with the growth of the cotton industries in the eighteenth century. Its remains are now associated with the cotton-manufacturing areas, the chief being in Lusatia at Zittau and Lauban, and especially in the Sudetes in west Silesia and in the extreme southeast corner of Saxony. There are two surviving seats of knitting and embroidery making, both of which are pursued as domestic crafts organized from town centres; these are in Saxony between Chemnitz and Plauen and Württemberg, in a large number of villages and small towns around Stuttgart. The German jute industry is the most important on the Continent; it is located in many factories in the textile areas and is not highly localized as it is in Scotland.

The production of silk and rayon are important textile industries of recent growth. The silk industry was developed after 1871, especially at Krefeld-Uerdingen and in Baden and Alsace. Between the wars, the manufacturers turned to the production of rayon and staple fibre from synthetic fibre, made from wood-pulp by chemical processes. The latter produces continuous lengths, like cotton and wools, and can be used on textile machinery, so that its production has gone ahead at the expense of rayon. The production of these synthetic textile industries released Germany to some degree from the import of textile fibres, and the production of staple fibre in particular increased spectacularly under the Nazis in the 'thirties and formed over a half of the European production in 1938.

Glass-making, like iron-working, was widespread in the Middle Ages in the uplands near supplies of timber, sands and clays. It began to be attracted to the coal-fields after 1800 and then to the lignite-fields after 1850. Glass production is now highly localized. The chief modern centres are concentrated on the Ruhr, the Saar, and the lignite-fields of Lusatia and Saxony, where the industry can draw at minimum costs the

large supplies of heat, sand and soda ash required in large-scale modern processes. Glass-working is still carried on as a domestic industry in the forested highlands where potash salt derived from charcoal from local timber was originally used. Today these districts produce such small skilled products as jewellery and glass eyes for dolls.

The making of porcelain dates from the end of the eighteenth century when local clays were used by two men in Thuringia, who were encouraged by the ruling prince of the state. In the early nineteenth century two other centres were established in the northeast of Bavaria (Weiden) and in Silesia, and these now produce almost all Germany's output. Dresden and Meissen are reputed for their pottery.

Paper-making was also formerly dependent on local supplies of timber and running water for both processing and power. The chief area in the early nineteenth century was in the Erzgebirge of Saxony on the upper courses of the many upland streams. Pre-war, nearly a half of the timber was imported, most of it from Bohemia, via the river Elbe, and fuel was imported from the coal-field of Zwickau and from the lignite-field to the north. Both water power and steam power are now widely used, and Saxony is still the chief area of paper production, occupying a quarter of the total persons employed in this industry in Germany. Paper-making and the printing industries, apart from Berlin, the chief centre, are also highly concentrated in Leipzig, and to a lesser extent in the other great cities. About a quarter of the domestic wood-pulp output is used for the manufacture of synthetic textiles. The production of paper in the 'thirties reached about 3 million tons.

Leather-tanning was formerly concentrated in the middle Rhinelands, where the main oak forests of Germany are situated. Local hides were also used. Over a half of the hides for the whole industry are imported, and tannin extract is obtained from imported quebracho wood. Consequently, new seats of the leather industry grew at or near the ports, especially in Schleswig-Holstein. Tanneries, however, are still most numerous in the chief cattle-rearing areas in the Reich and here too are the main seats of boot and shoe production. A quarter of the production of the latter is drawn from the Palatinate, where Pirmasens is almost exclusively a boot and shoe manufacturing town, while a fifth of the production is drawn from Württemberg at Kornwestheim. Similar proportions are drawn from Saxony and Bavaria. Other leather goods are produced, especially in the middle Rhine area at Offenbach and in the large cities. Over a half of the leather production is used in the production of boots and shoes.

Miscellaneous Industries of General Distribution. All the industries we have examined so far are tied down to particular areas or cities, although some are more widely distributed than others, and they give special

economic character to the areas in which they are carried on. Many of these are "heavy industries" that are tied down to their raw materials. Others depend on old-established traditions and skills in handicrafts in poor districts, where there are many people without adequate farming resources to support them. This has been the case with the metal-working and textile industries. The latter were stimulated and supported by the rulers in the so-called "mercantilist era" in the highland areas, where there was a poverty-stricken but skilled labour supply that was badly hit by the decline of the metal-working industries. Such textile industries were also started in new areas with the use of running water in small workshops at the end of the eighteenth century by the support of the same rulers within the boundaries of their small states.

A second great group of industries are widely distributed in proportion to the distribution of population. They are concerned, in other words, with satisfying the needs of the *whole* of the population and must have access to them. There are also those industries that depend on materials that are generally, that is universally, distributed and do not therefore call for localization of production in plants in any particular place. Such extractive manufacturing industries are ubiquitous in their distribution. This mode of distribution is characteristic of the clothing industries, that account for a tenth of all the industrial workers, the manufacture of food and drinks, also accounting for a tenth of the total workers, and the building trades, another tenth (actually 12 per cent), and water, gas and electricity supplies. In other words, about one-third of all the industries, based on the numbers of persons they employ, have a distribution that is in the main a replica of the distribution of population. There are, however, some exceptions. The sugar-beet industry is situated in or near the areas of beet production. The large towns in the eastern agricultural area that produce potatoes have the chief distilleries for the making of industrial alcohol, though there are many also in southern Germany. Cigar-making is concentrated in the tobacco-producing district of Baden and the Palatinate. Brewing is particularly concentrated in Bavaria, and above all in Munich, but breweries are also widespread, proportional to the population. Certain industries are located in the ports, where the raw materials are processed before distribution inland. This applies to the processing of cocoa, coffee, rice, tobacco (three-quarters of the consumption being normally imported), flour-milling and the preparation of oils and fats. Over a half of Germany's edible oils and fats are normally imported and the crushing of oil seeds was concentrated at Hamburg, Stettin and Bremen. About two-thirds of these oils were used for making margarine and one-third for soap. The production of the latter is very widely distributed, although main concentrations are to be found at Hamburg and Düsseldorf.

CHAPTER II

COMMERCE AND COMMERCIAL REGIONS

WESTERN CIVILIZATION is based primarily upon the ease, quickness, and cheapness, of the movement of goods, persons, and ideas. The medium of this movement is the route; its nexus, the town. Indeed, a main feature of our Western civilization is the dominance of the great cities in respect of the integration of the life, organization, and activities of large areas around them. Commerce finds its expression in two main ways. First, there is the long-distance movement of goods from one seat of industry to another, from port to market, and from seat of production to the great clearing-house in the metropolitan city. Secondly, there is the regional integration, which is focused upon the great cities in virtue of their vast size and their multitude of functions. It is thus in terms of the long-distance traffic that we shall examine the network of trade of west-central Europe and its subdivision into sections; and in terms of the regional integration of neighbouring agricultural and industrial areas around the great metropolitan cities that we shall seek to determine the modern regions of human life and organization.

HISTORICAL BACKGROUND

We may first glance at certain main traits of the historical development of transport facilities in their effects on the sequence of man–land relationships. The great advance in road and canal construction that took place in France during the eighteenth century, and especially during the Napoleonic era, took place tardily in the politically divided lands of Germany. Roads were bad in the early nineteenth century and the network of roads was still substantially the same as the network that was in being at the end of the Middle Ages, which we have noted on a previous page, and was probably in no better general condition. The metalling of roads had only just begun. The "Army and Trade Roads", as they were called, were, like the King's Highway in England, routes on which travel was permissible, with an occasional bridge or ferry. Under the Napoleonic occupation of the northwestern Rhinelands new straight and metalled roads had been built. Down to the middle of the nineteenth century, however, there were scarcely any metalled roads in the rest of

the Northern Lowland, where there was a dearth of suitable metalling material. The great era of road-building in Prussia began in 1845 and lasted until 1870. Little was done in the eastern provinces until 1850. "The late completion of a full road network in Germany is one of the many reasons for the lateness and rapidity of her final industrial development."[1]

Throughout the Middle Ages almost all rivers were navigated by small boats. The first canals to be constructed were situated in the narrow stretch of land at the head of the Denmark peninsula. It was here that the townsmen of the great medieval port of Lübeck built a canal at the end of the fourteenth century, called the Stechnitz canal, to carry salt from the Lüneburg district for the salting of herrings in the Baltic ports. This canal, twenty-one kilometres long, ran southwards to join with the lower Elbe. A second canal was built in the same area shortly after 1500 to serve for the transport of general merchandise from the southwest Baltic through Lübeck to Hamburg on the lower Elbe. This was a joint undertaking between the two cities, but difficulties were met in supplying it with adequate quantities of water; the landlords in the intervening territory were also opposed to it, and it soon fell into disuse. The purpose of these canals, of course, was to provide a direct link in the territory of the Reich between the Baltic and northern Germany, so as to avoid the longer sea passage that was controlled by Denmark. The same general incentive, with a definite strategic intent, prompted the construction of the Kaiser Wilhelm or Kiel canal in the same area four centuries later. Canal construction was relatively easy in the Northern Lowland and was undertaken at an early date in Brandenburg so as to link the capital with the Elbe and the Oder. The Finow canal was built in 1620 to connect the Oder and the Havel and other canals in this area were cut early in the nineteenth century before the advent of the railway. But the great era of river improvement and canal construction came in the latter half of the century. The more ambitious projects still further to improve the rivers and to construct new interconnecting canals come later still, in the twentieth century.

The improvement of navigation on the rivers was tardy also, since rivers were divided in their ownership and control. It took sixteen years (1816 to 1831) to regulate the international status of the Rhine and the free movement of goods on the river was not facilitated until after the elimination of tariff boundaries by the formation of the Zollverein. Germany was only slowly freed from the handicaps of a medieval fiscal system that imposed numerous artificial barriers on the free flow of goods by water and were at least as harmful as the rocks and shallows that had to be cleared to enable the free movement of ever larger vessels. In 1800 tolls

[1] J. H. Clapham, *Economic Development of France and Germany, 1815–1914*, p. 350.

were paid fourteen times on the Elbe between Hamburg and Magdeburg and thirty-three times on the Maine between Bamberg and Mainz.

Canal construction was neglected during the great railway-building boom, but began to receive renewed attention, largely for strategic reasons, in the 'eighties. These included the Kaiser Wilhelm or the Kiel canal and the Dortmund-Ems canal. The first was opened in 1901, though it was not entirely completed until 1914. The second was built between 1887 and 1895. In 1914 the canals of Germany reached 2,600 km. in length as compared to 5,000 km. in France, although Germany had about twice as many canalized or improved rivers as France. Tremendous strides were made after 1870 in the improvement of the rivers. This was the era of *Strombau*. In 1877 cargoes of 800 tons and in 1905 2,000 tons could navigate the Rhine to Mannheim. In 1877 cargoes of 400 to 500 tons could navigate the Elbe upstream to Magdeburg, in 1905 1,300 tons. In 1905 cargoes of 900 tons could navigate the Dortmund-Ems canal. The average canal barge reaching Berlin in 1878 carried 70 tons whereas in 1905 it was 190 tons.

The railway era began in the 'thirties. The first line was opened in 1839 between Leipzig and Dresden. Its first passengers, as Clapham reports, included ladies who kept needles between their lips to check familiarity in the single tunnel. In 1849–50 there were 3,000 miles of tracks on the German territory of 1914 as compared with 2,000 miles in France. Blocked out in 1850, the railway net, in all its essentials, was completed by 1870. The 6,000 km. (on the 1871 area) in 1850 reached 20,000 in 1871, 43,000 in 1890, and 61,000 in 1910. "In a country whose railway system was still new and very imperfect, and whose towns were almost without exception small and half rural, its revolutionary influence was far more conspicuous than in older-developed and more urbanized lands. There was something American about it, just as there was a technical likeness between German and American railway methods "[1]

The advent of the railway and the telephone and the rapidly increasing complexity of social and economic life brought great changes in rural and urban life. A few points may be noticed.

Even the trader with a shop was not too common in the Germany of the 'forties. In most places there were no shops except the workshops of the handicraftsmen, tailors, cobblers, carpenters and the rest. If the consumer wanted what they could not make, he must buy from a peddler or from his local yearly market. Townsmen and peasant met weekly at the ordinary market, to buy and sell food; and so the average town lived on local produce. Few were large enough to need supplies from a distance. But for anything unusual both townsman and peasant had to wait. Spices and condiments, materials for clothes, furniture, tools and implements at all out of the common run, toys and little luxuries, were brought by migratory traders—grading upwards from the peddler to what might

[1] *Ibid.*, p. 155.

be called the merchant—to the yearly market. It was a great occasion. There were puppet shows and rope-dancers and English riders. The peasants poured in to make their little purchases; the squires and townsfolk laid in their stores. There would be selling, too, by the local people—cattle perhaps, if the yearly market was also a cattle market, or flax and other industrial crops, if the district grew a surplus of these things.[1]

The great fairs began to show signs of decline in the middle of the century. Here met dealers rather than consumers. "The local trader, who collected from independent craftsmen or peasants the coffee mills of Nuremberg, the clocks of the Black Forest, the linens of Silesia, or the toys of the Thüringerwald, met at the fairs other traders who knew the outlets for his goods, at home or abroad." The large *Verleger*, for whom cottage wage-earners worked on commission, might visit the fair for himself. The importers of "colonial wares" reached their widespread clientele through the medium of the fairs, but since these were in general demand they early began to be sold in regular shops, though the change was slow. Before the Napoleonic wars, Berlin, with its court and 200,000 inhabitants, had a very few shops clustered on two streets. The Berliners spun, baked and brewed and sometimes even wove and slaughtered at home at this time.[2] And this had not changed in 1815 after twenty years of unrest and devastation. It was not until after 1830 that specialized shops began to appear, dealing in sugar and coffee, candles, pins and tape, as successors to the peddler and the weekly market.

In 1871 most German towns had a food market where producer and consumer met and bargained, and in 1910 it was reported that in most small country towns in many regions selling was for the most part done by the producer himself.[3] But large central public markets gradually came into being in the larger towns in the second half of the century. Frankfurt was the first city to build a large central market hall on the pattern of the French *Halles* in 1879, and it was followed by many others. These markets sometimes combined retail and wholesale trades. The yearly markets had given way to the shops by 1840 in the large cities. They retained their significance in the smaller towns, but rapidly disappeared after the advent of the railways in the 'seventies. The big international fairs were gradually displaced by the sample fair. The great fair at Leipzig, for example, handled goods such as pottery and glass, metal goods, fancy goods, hardware and toys, leather and furs; and sample trading was applied to the new industries, such as the bicycle and the automobile when they appeared.

This change in the structure of trade and its effects on the commercial character of the town is evident also in the development of transport

[1] *Ibid.*, p. 117. [2] *Ibid.*, p. 118. [3] *Ibid.*, p. 369.

facilities (railway passenger station, goods and marshalling yards); industry (new factories tending to cluster first in the built-up area on flat low-lying lands, but later shifting to the outskirts); and in the increasing competition of commerce, administration and recreation for space in the centre of the town. All this specialization of function demanded new building structures and increased the general tempo of social and economic and demographic change in the urban community. The remarkable fact is that this transformation from what were, in effect, medieval conditions to the conditions of contemporary society, was effected in one generation, the Imperial Era of Germany, from 1870 to 1918.

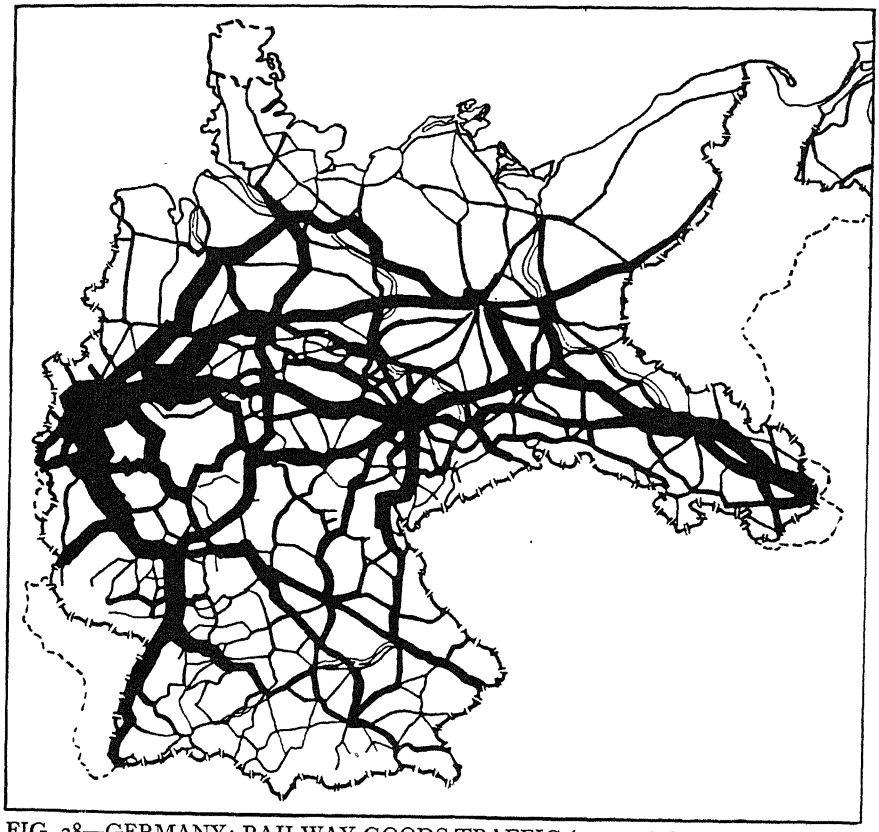


FIG. 38—GERMANY: RAILWAY GOODS TRAFFIC (pre-war) (*from Pfannschmidt*)
(scale, 1 : 10 m.)
Lines are proportioned in width to daily number of through trains.

THE TRAFFIC ARTERIES

Railways. The railways of pre-war Germany had an aggregate length of nearly 34,000 miles with a density of 18·6 miles of rail for every 100

square miles of territory and 5·6 miles for every 10,000 people. This density, which is the same as that of Denmark, is the highest in Europe, except for Belgium, and is comparable with that of the United Kingdom, which, with 20,700 miles of railways, has 21·5 miles for every 100 square miles and 4·4 miles for every 10,000 inhabitants. The first line was opened in 1835 between Nuremberg and Furth and the first engine was built by Robert Stephenson and had a British crew. The second was built from Leipzig to Dresden in 1839.

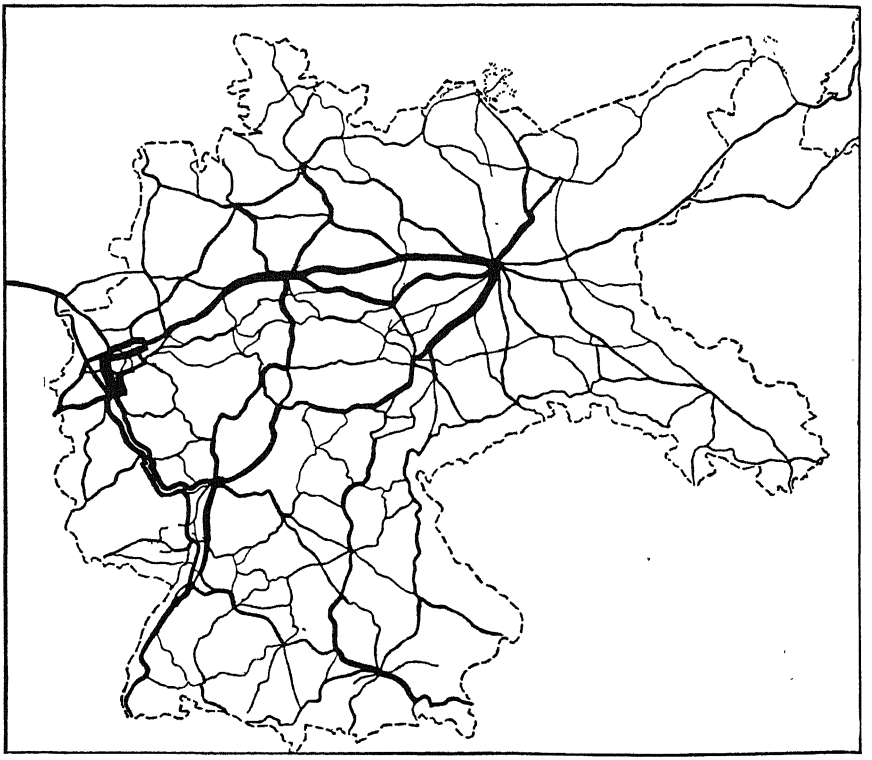


FIG. 39—GERMANY: RAILWAY PASSENGER TRAFFIC (pre-war) (*from Pfannschmidt*) (scale, 1 : 10 m.)

Lines are proportionate in width to the number of daily fast trains.

In 1937, the railways carried about 500 million tons of freight, three times that of the waterways. About two-thirds of the tonnage of this traffic is fuel and ores. The chief items are coal, stone, earth, sand and gravel, lignite, briquettes, lignite coke, and raw lignite. Thus, fuels account for two-fifths of the total. For purposes of traffic statistics by

rail the Reich was divided into forty-three districts (*Verkehrsbezirke*). The Ruhr area alone, comprising two districts, accounted for 18 per cent of this grand traffic total. Of the total, about 90 per cent is classed as domestic traffic (*Inlandverkehr*), while the rest is classed as transit traffic (*Durchgangsverkehr*). Local trade is also distinguished in the domestic total and this consists of consignments to destinations within one traffic district. Coal, the chief item of traffic, is carried by rail rather than water, 100 as against 43 million tons.[1] The patterns of passenger and freight traffic are shown on Figs. 38 and 39.

Roads. Roads carried 15 million tons of traffic over distances of over thirty miles in 1937. A large part of the road traffic, carried over short hauls, is omitted from these aggregate returns. Over a half of this total consisted of industrial products (not minerals), and agricultural products accounted for a third. Roads carried about 550 million passengers in buses on long- and short-distance routes as compared with 1,735 million passengers on rail and 3,000 million by street cars.

The construction of great trans-country motor roads (Autobahnen) was a spectacular development in the 'thirties.

Waterways (Fig. 40) play an important part in the commerce of Germany.[2] There are 8,000 miles of navigable waterways and just over a half take barges with a capacity of over 1,000 tons. In 1937 these navigable waterways carried 133 million tons of goods. The waterways of Germany suffered in the past from numerous tolls levied by independent political authorities more or less at will. The Congress of Vienna recognized the freedom of the navigation of each river throughout its whole length for the states that bordered it, and tolls on the German rivers were generally reduced during the 'fifties and 'sixties. After 1875 canals and rivers were improved and the share of their total traffic increased from 21 per cent in 1875 to 25 per cent in 1910, and the traffic carried increased six-fold. The main deterrent to navigation is the winter freeze. This is only a few days on the Rhine, but lasts two weeks on the Rhine-Herne canal, three or four weeks on the Weser, Main and Danube, four to six weeks on the Mitelland canal, six to eight weeks on the Spree and Oder, and three and a half to four months in East Prussia.

[1] Annual data for the study of traffic movements appear in *Die Güterbewegung auf Deutschen Eisenbahnen im Jahre 1937*, Heft I. *Versand im Inlandverkehr und Versand und Empfang im Auslandsverkehr nach Verkehrsbezirken; Eisenbahn-Umschlagverkehr der Deutschen und Fremden Seehäfen, Statistik des Deutschen Reichs*, Band 522, Heft I, Berlin, 1938. Heft II, *Empfang im Inlandverkehr nach Verkehrsbezirken, Durchgangsverkehr, Hauptzusammenstellung, Statistik des Deutschen Reichs*, Band 522, Heft II. There are forty-three such districts in the Reich. The following ports are listed as separate districts, so that their hinterlands may be determined in detail: Königsberg, Pillau and Elbing: Rostock to Flensburg: lower Elbe ports; lower Weser ports; Ems ports. The following cities are also listed separately: Breslau, Berlin, Leipzig, Frankfurt, Cologne, Mannheim-Ludwigshafen, Munich. Twenty-six areas in Europe are also listed.

[2] *Statistik des Deutschen Reiches*, Band 523, *Die Binnenschiffahrt im Jahre 1937*, 1938.

Of the 133 million tons carried by water in 1937, heavy bulk goods were dominant, the chief being coal and coke (48 millions), lignite (3·3), ores (19·0), sand and gravel (14·0), cereals (6·0), iron and steel (5·0) and stone (4·2). Imports by water reached 26 million tons and of this total 17 went to the Ruhr, including 8 million to Duisburg alone. Over 10 million tons were ores from the Netherlands and 2 million from Belgium. Exports by water were 35 million tons, and of this total 30 million tons went from the lower Rhinelands and 17 million from Duisburg alone (25·5 million tons of coal and coke). Most of this moved to the Netherlands, and 6 million tons of coal went to Belgium.

The Rhine has a total navigable length of 443 miles from the Swiss to the Netherlands frontier. The period of navigation between Basel and Strasbourg is just under three months (June to August), this being the period of high water. The strong current also makes upstream navigation difficult in this stretch. The limit for small ocean-going craft is Cologne. Barge trains carrying 6–7,000 tons reach Duisburg, barge trains of 5,000 tons reach Mannheim, and barges of 1–2,000 tons reach as far as Strasbourg. The channel to Basel has been straightened and banked, though an increased velocity of flow is the result. The last barrage is at Kembs. Duisburg-Ruhrort dominates the traffic, and handled 34 million tons of goods in 1937. There are smaller industrial wharves on the lower Rhine at Ürdingen, Düsseldorf-Neuss (3·9 million tons), and Cologne (3·4), with Wesseling (the outlet for the lignite-field) (3). Mainz handles 2·5 million tons, Mannheim-Ludwigshafen 11 million tons (coal, iron and steel, chemicals and petroleum), and Karlsruhe (3).

The Rhine traffic amounts to two-thirds of the total water-borne traffic of Germany and consists of coal, iron ore, cereals and timber. In 1937 25·7 million tons moved upstream across the Netherlands frontier and included 13 million tons of iron ore and 2·8 million tons of grain. The downstream traffic amounted to 33 million tons, including 23·7 million tons of coal, coke and lignite briquettes, 2 million tons of iron and steel goods, and 1·5 million tons of fertilizers.

The river Main is navigable up to Bamberg and the Danube is navigable below Kelheim. A canal to connect them, that roughly follows the direction of the Ludwigs canal, is under construction. The Neckar is navigable for 1,000-ton barges to Plochingen, and a canal via Stuttgart to link it with the Danube at Ulm is under construction.

The Weser is navigable for 850-ton barges to Hameln and, through recent dredging, up to Kassel, whence 400-ton barges can reach Meiningen on the Werra. The Mittelland canal takes 1,000-ton barges, and Hildesheim, Hanover and Brunswick have dock facilities on it. The canal is now complete from the Ems canal to the Elbe at Burg, a little below Magdeburg.

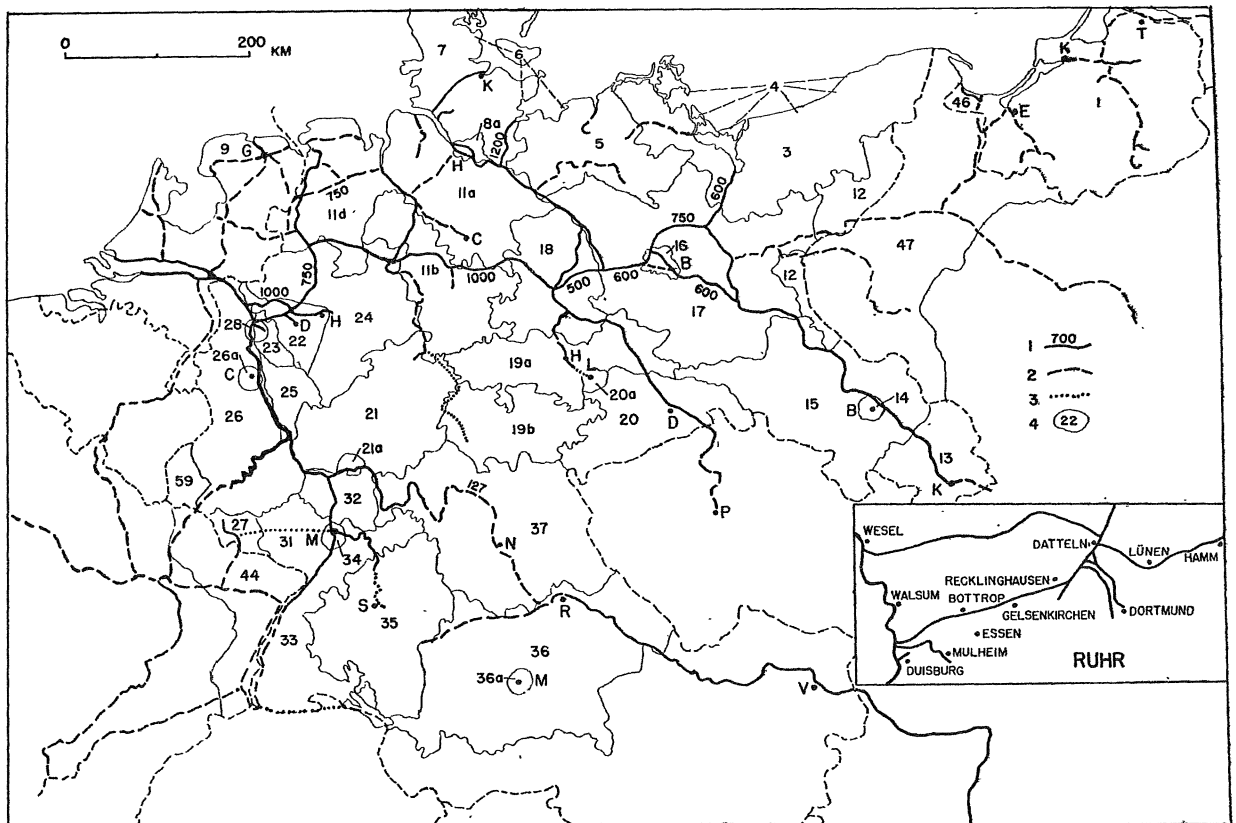


FIG. 40—GERMANY: NAVIGABLE WATERWAYS (scale, 1 : 8 m.)

1. Navigable rivers and canals: numbers indicate tonnage capacity of barges 2. Minor waterways 3. Canals projected 4. Trade districts with their numbers (detailed reference to these districts is omitted in the text).

The Elbe is the second great navigable artery of Germany, but its traffic differs considerably from that of the Rhine in the much greater diversity of its products that move both upstream and downstream. It is navigable by 600-ton barges as far as Prague. Hamburg is the terminus of most of this traffic. In 1938 Hamburg handled 10 million tons of coal, coke, petroleum, wheat, timber, wood-pulp, iron ore, fertilizers and foodstuffs. In 1938 the section of the river from Hamburg to Lauenberg (31 miles) handled 8·8 million tons, the middle Elbe upstream to Wallnitzhafen (192 miles) handled 6 million tons, and the upper Elbe to the Czech frontier handled 850,000 tons, while the Czech sector handled 1 million tons. Magdeburg (2·1 millions), Dessau (Wallnitzhafen, 385,000 tons), Dresden (642,000 tons), Aussig and Prague are the chief ports.

The Saale and the Unstrut below Artern are navigable for 200-ton barges, though the Saale below Halle is navigable by 500-ton barges, and upstream Naumburg is the limit of navigation (170-ton barges). The Saale is being deepened and straightened for 1,000-ton barges. The Oder has an unfavourable regime for navigation, since it has very low water in summer and serious floods in spring and ice also occurs for forty days at Frankfurt. Kosel has long been the head of navigation, but in 1940 the Adolf Hitler canal was opened to link the Oder at Kosel with Upper Silesia at Gleiwitz. Coal and coke are the chief items of the traffic on the upper Oder.

THE PORTS (See also Ch. 20)

The overseas trade of Germany is handled by the ports on the North Sea and the Baltic Sea shores. Hamburg is the giant of this traffic, handling well over a half of the total. Bremen handles about one-tenth of the total, and Emden 6 per cent. Thus, the North Sea ports handle two-thirds of the overseas trade passing through German ports. The Baltic ports are more numerous and were of great importance in the Middle Ages, when Lübeck was their leader. These ports have steadily increased their trade, but the proportion to the total has decreased through the growth of the North Sea ports. It was not until 1860 that the tonnage of ships using the two groups of ports reached equality. In the aggregate they handled one-third of the overseas trade, and this was mainly directed to northern Europe. The chief of the German Baltic ports was Stettin.

During the first half of the nineteenth century the ports at the mouth of the Rhine—Rotterdam, Antwerp and Amsterdam—were able to take immediate advantage of the growing needs of the industrial areas of the Rhinelands, particularly of the Ruhr. The development was facilitated

by the dues levied on the Scheldt by Holland on Belgium from 1830 to 1863, that worked to the disadvantage of Antwerp. Antwerp developed, unlike Rotterdam, as a liner port after 1850, handling large quantities of goods that are carried by rail in numerous, relatively small, consignments. Hamburg rather resembles Rotterdam in the great volume of its traffic that is transhipped from boat to barge. This is evident in the large extent of its water areas as opposed to the large railway tracks of Antwerp and Bremen. Hamburg handled about 10 million tons of river-borne traffic in 1930, as compared with 29 for Duisburg-Ruhrort, 8·7 for Berlin and 8·5 for Mannheim-Ludwigshafen.

The growth of both Hamburg and Bremen dates especially from 1870, with the ever-growing demands of a rapidly growing industrial hinterland on overseas markets for foods, raw materials and manufactured goods that are carried by rail in numerous, relatively small, consignformed the basis of the liner traffic of both Hapag and Lloyd. The vast shipping concerns catered for emigrants not merely from Germany but also from the whole of central and eastern Europe. In the first years of the twentieth century when this emigration reached its peak, these two firms handled more than a third of all the immigrants who entered the United States through New York. In 1912, 120,000 persons passed through Hamburg, and 133,000 through Bremen. Further advantages that accrued to these two ports were the special railway freight rates in Germany and through rates for Baltic goods that came through the Kiel canal. In this way the two German ports were able to compete with the Rhine ports. The situation may be judged by the tonnage of ships entering the ports. This is shown below:

Shipping Tonnage entering the Ports (in millions of net registered tons)

	1870	1913	1927	1932
Hamburg ..	1·65	14·2	19·6	18·25
Bremen* ..	0·5	5·3	8·7	7·9
Rotterdam ..	1·2	12·8	21·2	14·2
Antwerp ..	1·4	12·0	19·9	16·7

*Bremen includes Bremerhaven.

A registered ton is a measurement of space. It amounts to 2·83 cubic metres. A net registered ton is the cubic space minus the space *not* available for cargo.

Hamburg has a large number of independent liner companies with regular sailings to all parts of the world, far more so than Bremen. Moreover its trade is very widely distributed through the world, as opposed to that of Bremen which is more exclusively concerned with the North American trade. Two-thirds of the ingoing ships and four-tenths of the outgoing ships to and from Bremen go to North America,

the corresponding figures for Hamburg, in and out, being one-third. Hamburg had a much larger number of independent firms handling its commerce than Bremen, although many of these firms were merged in the post-1918 period. The biggest of these is the Hamburg-Amerika line, that began in 1847 with the sailing ship and soon exceeded the Lloyd firm of Bremen that was a little older. The former continued to handle much of the passenger traffic, handling 160,000 passengers in 1930. A number of old-established Hamburg lines were absorbed by the Hamburg-Amerika lines after World War I. Immediately after World War I, the German flag was insignificant in the sailing to and from Hamburg, but foreign lines all sought to have a place in its traffic. But in the 'thirties the German proportion again held first place, these German firms competing hard with the foreign firms that had regular sailings from Hamburg. The tonnage of Hamburg shipping lines was 2·2 million registered tons in the early 'thirties as compared with 4·2 million for the Reich and 1·4 million for Bremen. Hamburg's trade was so widespread and varied that consignments were sent out at first in foreign vessels and the Hamburg firms slowly took over a larger proportion. Bremen's trade was smaller and its firms sought to increase this trade by building its own ships. Thus, in 1850 Bremen was the chief shipping port, while Hamburg was about equal with Stettin, Danzig and Rostock. Not till 1873 did Hamburg finally take the lead in its own shipping tonnage.

Industry and commerce have grown at Hamburg with the growth of overseas trade. Shipbuilding and marine engineering, in which the firms of Blohm and Voss, the Deutsche Werft and Howaldswerke are the chief participants, are clustered in the harbour area. The treatment of imported raw materials and foodstuffs has also developed both in the harbour area as well as on the wider urban periphery. Oil, grain, wool and jute spinning, rubber and chemicals, asphalt, margarine, cigarettes and cigars, are included in these industries. This industry has been supported in large measure by the import of cheap English coal, that was able to compete with Ruhr coal.

Bremen's contacts with its hinterland are almost entirely by rail. Eighty-five per cent of the goods received come by rail or road, only 15 per cent by water, as compared with 40 per cent by rail and 60 per cent by water to Hamburg. Thus, the railway track alongside the wharves and warehouses are main features of Bremen. It has 300 km. of rail to 40 km. of wharves. It also has industries associated with its trades and shipbuilding as in Hamburg. But after 1918 it concentrated again on the development of passenger services and to this end built the *Bremen* and the *Europa* and the *Columbus* especially for trade with New York. The traffic of Bremen consists chiefly of cotton, wool and grain. It is the

principal cotton market on the Continent. Of lesser importance are yarns, skins, metals, oil seeds, tobacco and coffee. Exports make up only a third of the value of its imports. And throughout its modern development the trade of Bremen has been overwhelmingly concentrated on the United States.

Extra-European Trade of Bremen and Hamburg by Continents (1929)

	Imports		*Exports*	
	B.	*H.*	*B.*	*H.*
North America ..	67	33	42	32
South America ..	8	22	8	13
South Asia ..	13	16	18	12
East Asia	1	17	10	21
Africa	5	8	4	10

Goods Traffic of German Ports in 1928–38 (*in thousands of tons*)
(*Statistisches Handbuch*, 1949, p. 367, and *Deutschland Jahrbuch*, 1949, p. 197)

	Exports			*Imports*		
	1928	1938	1947	1928	1938	1947
Stettin ..	825	2,169	—	2,750	3,348	—
Hamburg ..	8,877	5,644	982	19,036	16,878	5,013
Bremen ..	1,624	4,069	273	3,564	3,225	4,570
Emden ..	349	1,105	316	1,442	3,905	2,515

Inland Traffic of Hamburg (*in thousands of tons*)
(*Deutschland Jahrbuch*, 1949, p. 197.)

	1938	1946
Lower Elbe ..	872	545
Upper Elbe ..	8,989	758
British Zone ..	854	476
Soviet Zone ..	7,214	227
Czechoslovakia ..	902	259
TOTAL ..	18,831	2,265

While the North Sea coast contains two main ports and a third of minor importance, the Baltic coast contains a large number of ports of historic importance, only a few of which are of significance in modern commerce. In 1869 Stettin slightly exceeded Bremen in terms of its ingoing shipping tonnage. Schleswig is the oldest of the German Baltic

ports since it dates from the tenth century. Lübeck and Danzig emerged early in the eleventh century but did not become important ports until after the German settlement in the twelfth century. About the same period Flensburg emerged. During the thirteenth century the remainder developed—Kiel, Wismar, Rostock, Stralsund, Stettin, Stolp, Elbing, Königsberg, Memel. These ports were activated largely by the members of the Hanseatic League, and their development was associated partly with the eastward spread of German colonization, and partly by the development of trade with the Scandinavian countries, from whence was derived timber, tar, wax, honey, furs and fish. The southwestern Baltic also had great herring shoals, but these shifted at the end of the Middle Ages to the North Sea, for reasons that are obscure. Wheat became an important export of the Vistula basin and the western Ukraine in the seventeenth and eighteenth centuries, and it was exported through the great port of Danzig, until the partition of Poland cut it off from its natural hinterland. In the fifteenth century Holland, that was primarily a commercial and industrial state, derived nine-tenths of its wheat requirement from the Baltic lands. This importance of the Baltic as a source of timber and grain remained until the nineteenth century. This trade was the *raison d'être* of the Baltic ports until the early nineteenth century.

The industrialization of western Europe and the growth of transatlantic trade changed the picture. The industrial areas of Germany were the chief centres of attraction for both the import and export of goods through the North Sea ports. Moreover, the grain surpluses of eastern and central Europe beyond the Elbe on the whole decreased with the increase of their own consumption. New commodities, however, entered into the trade of the Baltic in this modern period. The chief of these are timber and iron ore, both of which move south, and coal, that moves north to feed the countries of Scandinavia and the Baltic shores, none of which possess coal. But the change-over in the total traffic of the North Sea and the Baltic ports was slow. For in spite of the rapidly growing demands for shipping facilities in western Europe, the ports of Bremen and Hamburg had to recover from the devastation and bad times of the Napoleonic wars; moreover, they had to compete with the ports of the Low Countries as well as with the British ports. So that the Baltic ports were, in fact, only slowly eclipsed. Thus, in 1850, ship entrances were as follows:

Ship Entrances, 1850 (*in thousands of registered tons*)

Hamburg	546	Bremen	123	Kiel	38
Stettin	207	Lubeck	106	Wismar	30
Danzig	184	Altona	76	Stralsund	30
Memel	160	Rostock	48	Emden	28
Konigsberg	127	Brake	45		

Moreover, the custom of several persons investing in one vessel helped to maintain many small ports down to the 'eighties. Thus, in 1850 the shipping entries in aggregate to the Baltic ports were 1,500,000 tons as compared with 1,100,000 tons to the North Sea ports. In 1930 the totals were 9,700,000 tons and 34,100,000 tons respectively. The decline of these ports is thus relative to the tremendous increase of Hamburg and Bremen. In 1850 only Hamburg came in question, for in this year Bremen was exceeded by four Baltic ports. Only in 1860 was equality reached, and after 1870 the North Sea trade increased rapidly. But this does not mean an actual decrease in the amount of Baltic trade. On the contrary, this trade increased. The total tonnage of ships entering the Baltic Sea ports increased from 1·5 million in 1850 to 10·9 million in 1913, whereas that of the North Sea ports increased from 1·1 million to 24·1 million in the same period. (It should be noted that Danzig is included in these figures.) During World War I, the trade of the North Sea ports came to a standstill, but that of the Baltic ports continued and increased. The same was true of World War II. Various attempts have also been made to increase the trade of the Baltic by the opening of the canal from Leningrad to the White Sea and to make Copenhagen into an *entrepôt* for the Baltic trade.[1]

The ports suffered great damage during the war, but by 1947 40 per cent of Hamburg's pre-war capacity was available, 45 per cent of Bremen's, and 85 per cent of Emden's. The total goods traffic of these three ports was 15 million tons in 1947 (as compared with 50 millions in 1938), 6 million tons to Hamburg, 3·9 to Bremen, 4·8 to Bremerhaven. The inland trade of Hamburg suffers from the fact that the hinterland lies in the Russian Zone. The 10 million tons of inland river traffic in 1938 was reduced to 1·3 million tons in 1946. The trade with the Soviet section of the hinterland has vanished. Czechoslovakia is finding its overseas outlets in Stettin and Rotterdam. The transit trade through Hamburg was reduced in 1947 to 28 per cent of its pre-war level. Bremen, on the other hand, shows a better revival, since it is the port for the American Zone, and Bremerhaven in particular is used for this traffic.

SOME MAJOR COMMODITY MOVEMENTS

Some of the basic facts of production, commerce, and organization will now be briefly summarized. A wide industrial zone extends from the western frontier at Aachen to a broad base along the upland frontier zone against Czechoslovakia. It lies on the northern edge of, and extends into, the *Mittelgebirge*. The most exclusively industrial areas are the Ruhr and the basin of the middle Elbe (Central Germany). The Rhineland is

[1] This material is drawn from R. Lütgens, *Die Deutschen Seehäfen*, 1934.

the second industrial zone. The chief area here is the northern part of the Upper Rhine Plain; its main centres are Frankfurt and Mannheim. The Neckar basin is the nucleus of another major industrial region in the southwest. Elsewhere the great cities are the chief industrial centres, the largest of which is, of course, Berlin. These facts are shown in Figs. 39–49. Let us first consider the normal pre-war movements of foodstuffs.

The agricultural regions of west-central Europe have already been discussed in general. Large holdings predominate east of the Elbe and in an extension westward that includes the loess soils of the *Börde* between the Elbe and the Weser. Here are the two main regions of rye-potato-livestock production, in the north and northeast, and the belt of wheat-beet-livestock production, on the edge of the Central Uplands. A low ratio of population to cultivated area permits a surplus of grain, potatoes and stock, which was directed mainly to Berlin and Saxony; rye was normally exported in considerable quantities to Scandinavia. Medium-sized holdings predominate in the northwest and in Bavaria. The northwest has a large production and surplus of potatoes, dairy products, beef and swine. Bavaria, north of the Danube, is characterized by livestock and crop production, in contrast with the dairying production (and surplus) of the Bavarian Plateau and the Neckar basin. Small-holdings (less than 12½ acres) predominate in the Rhine land, and the farmer sells mainly small quantities of wine, fruits, tobacco, etc. Throughout the south and west farmers live on small, subdivided farms, and the domestic demand absorbs the bulk of the production. Here, however, there are large industrial areas—the Ruhr, the middle Rhine, Württemberg, Baden and Munich. Consequently all of this half of Germany is on balance an importer of certain food supplies—grain, potatoes, swine. The chief consumer is the overwhelmingly urbanized region of the lower Rhinelands. The principal sources of supplies are the *Börde* and the northwest. The west is too remote to draw normally on the surpluses of the east; in any case, the main grain there is rye, and food surpluses are absorbed by Berlin and Saxony. Thus, through the medium of the Rhine, large quantities of wheat are imported from abroad.

The concentration of people in urban areas necessitates the importation of food supplies from extensive home areas and perhaps from abroad. The specialization of modern industrial production entails a dependence on distant home markets, nation-wide relationships with regions of complementary character, and a dependence on ports for foreign trade. This highly complex fabric of interregional relationships can be illustrated here by only a few examples, based on goods-traffic returns (water- and rail-borne) for the year 1937.[1] The regions that import the largest quantities of grain are Saxony and the lower Rhine

[1] *Die Güterbewegung auf den Deutschen Eisenbahnen im Jahre* 1937. (See p. 257).

and the densely populated areas of Württemberg and Baden. Even Bavaria is on balance an importer, mainly on account of the large demands of its two chief cities, Nuremberg and Munich (Fig. 41). The main centres of grain distribution are indicated by the location of the milling industry. The large centres of Hamburg and Bremen depend on imported foreign supplies; Berlin depends largely on the east Elbian

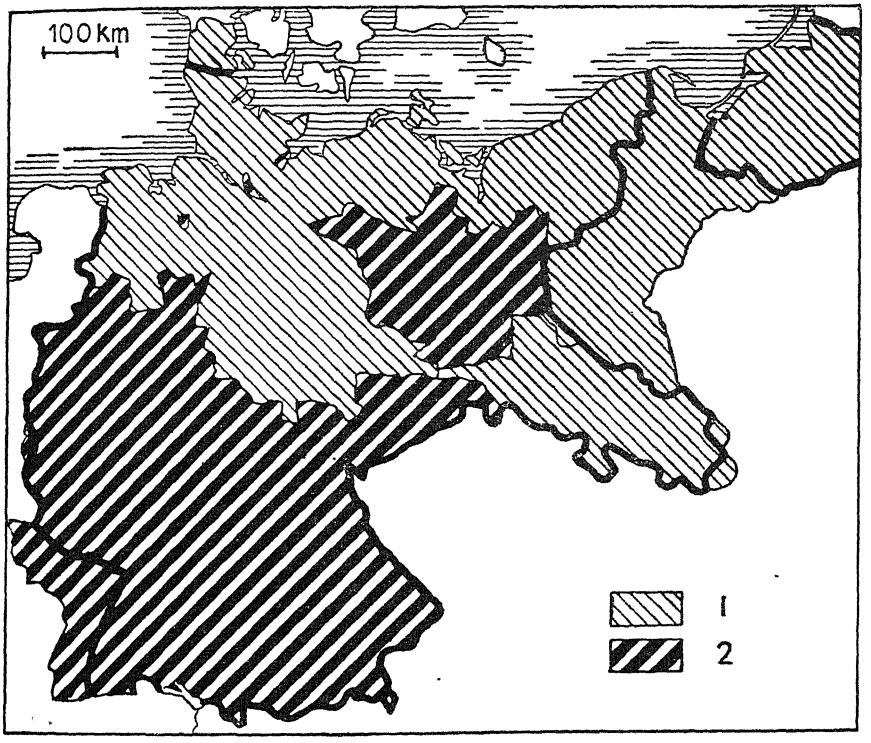


FIG. 41—GERMANY: DISTRIBUTION OF BREAD GRAINS (pre-war) (*from Scheu*) (scale, 1 : 10 m.)

This map shows the areas with surplus supplies for export (1) and areas with a deficiency, that depend on imports to meet total consumption requirements (2).

region. The chief milling regions of the Rhineland, also depending mainly on foreign supplies, brought up the Rhine, are the lower Rhine area, which supplies the urban areas of the northwest, and the Mannheim district, which is the chief supplier of the southwest. The other important areas of concentration are the two rich agricultural areas of Central Germany and Silesia.

It is often stated in post-war reports that the western section of Germany would be much better-fed if the surpluses of eastern Germany,

now occupied by Russia and Poland, were available. The assumption is that formerly the agricultural provinces of the east supplied large quantities of foodstuffs to the western provinces. In fact, the surpluses of grain and meat and livestock of the eastern provinces went almost entirely to Berlin, Saxony and Thuringia. The supplies imported by the Ruhr and the rest of the provinces of Rhineland and Westphalia from the eastern provinces beyond the Elbe in 1937 were small. This applies to wheat, rye, meat and livestock. The only really substantial contributions from these eastern provinces to western Germany were potatoes. Out of a total import of about 800,000 tons of potatoes to the Ruhr in 1937 roughly 350,000 tons, or nearly a half, was drawn from these eastern districts. The eastern provinces supplied the Elbe basin areas and Berlin, not northwestern Germany. The latter—and this means the British Zone of occupation—depended on the western provinces, and especially on imports.[1]

These pre-war figures indicate the dependence of the western provinces partly on local movements, notably from the surplus areas of the Cologne Bay, the *Börde*, and south Bavaria, but also on wheat imports through Hamburg, Duisburg and Mannheim. There was a negligible movement from the eastern provinces. Post-war implications are considered in Chapter 51.

As regards meat supplies (Fig. 42) the slaughter-houses of the lower Rhine urban centres obtain the bulk of their cattle, calves and swine from Westphalia, Hanover and Oldenburg. Practically all the Ruhr's supply of swine comes from this same area. Berlin's meat supplies come mainly from Pomerania and East Prussia. Saxony, with its five million people, imports pigs (in spite of its own large production) from Schleswig-Holstein and, to a less extent, from province Saxony, Lower Silesia and Thuringia; cattle are obtained mainly from the contiguous areas.

The movement of raw materials and manufactured goods shows a much more complicated pattern. The principal coal-fields of Germany are near its frontiers, a location favourable for export, but disadvantageous for general distribution at competitive prices. Between the wars, Upper Silesia supplied the area east of the Elbe, except in its lower reaches, and the Ruhr served mainly the northwest. Large quantities of coal were sent to central Germany and to south Germany, and large quantities of coke to the Saar. Coal from the Saar was sent to the south, where it competed with Ruhr supplies (see below). Through the ports came English coal, some 10 million tons annually, into the area between the

[1] South Bavaria is a large surplus area for western Germany. Its exports of wheat in 1937 reached 200,000 tons of which 35,000 tons went to the Ruhr and 40,000 tons to Mannheim and 20,000 tons to Munich. Exports of rye reach 20,000 tons (4,500 tons to Munich and 6,000 tons to North Bavaria and 3,000 tons to Frankfurt). Rye and wheat flour exports reach 43,000 tons, over a half of which goes to North Bavaria and Munich.

two competitive sources of coal supply; the three supplies met and competed in Berlin. It is in this intermediate area that the phenomenal development of brown coal (lignite) production has taken place, during and since the 1914–18 war (Fig. 43). Brown coal, used as a fuel or converted into briquettes, has a limited marketing radius. The bulk of the production of the plains of Central Germany is used on the spot in the

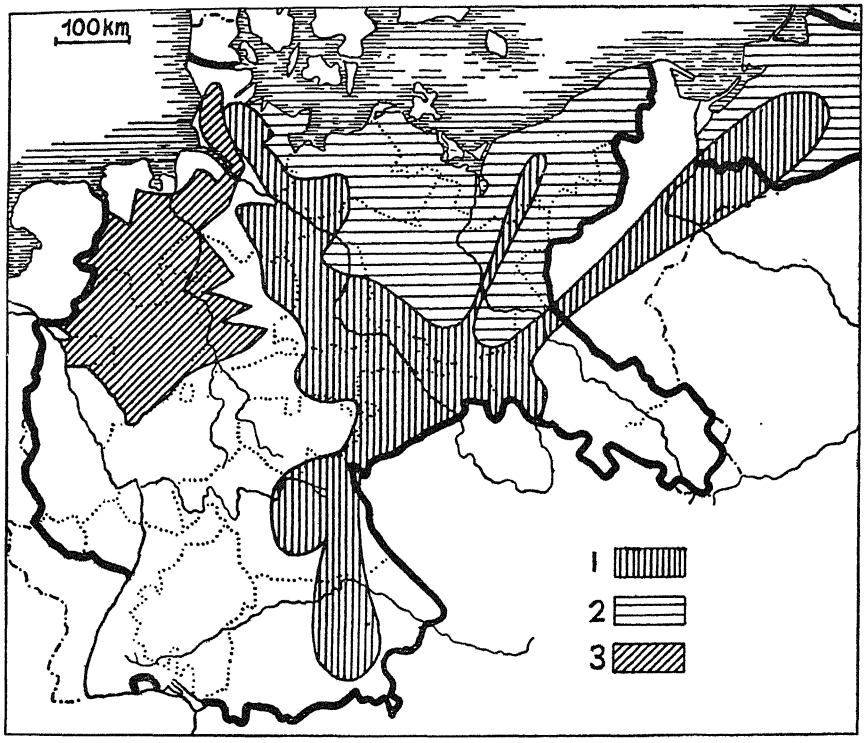


FIG. 42—GERMANY: MEAT SUPPLIES OF THE CHIEF CITIES (pre-war) (*from Scheu*) (scale, 1 : 10 m.)

Areas of meat supply of the three chief areas of consumption (pre-war):
1. Saxony 2. Berlin 3. Ruhr

sugar-beet and chemical industries and for the generation of electricity, which is distributed throughout this vast industrial region. The trade in brown coal is directed mainly to the complementary industrial region of Saxony. A similar development and export of brown coal to complementary and neighbouring industrial areas—in this case the areas of the lower Rhine—is found in the other main area of production, in the "bay" of the Cologne lowland, west of the city of Cologne. It may be added that the main marketing areas of the chief producers of iron and

steel coincide, in general, with the coal areas, since the main centres of production of both products are the same.

Attention should also be given to the seats of production of iron and steel, and the extent of the pre-war market areas of the four main seats of production (Fig. 44).

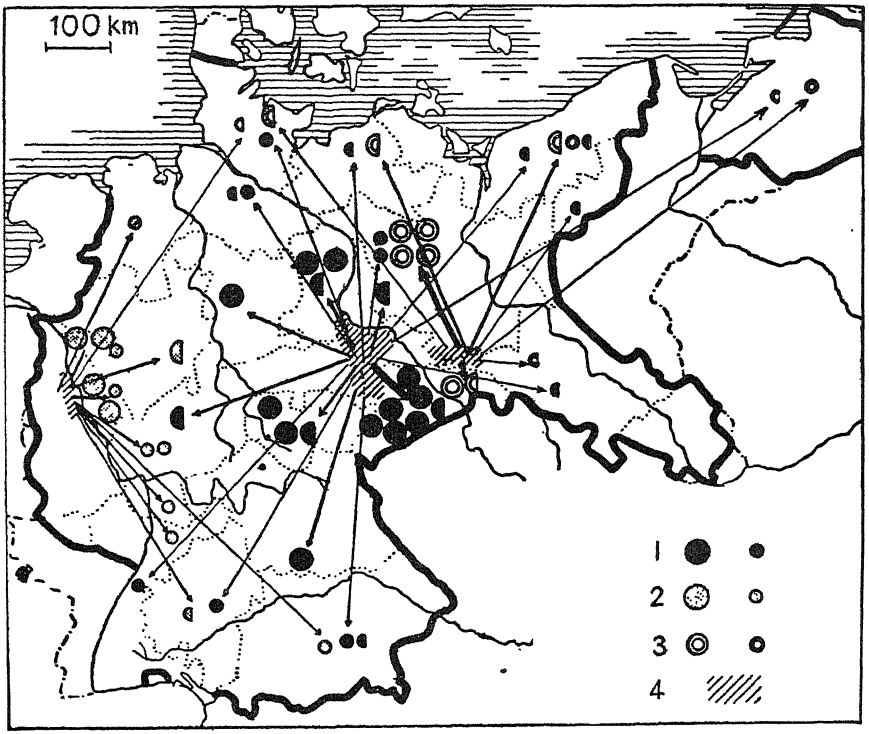


FIG. 43—GERMANY: LIGNITE PRODUCTION AND MOVEMENTS (pre-war) (*from Scheu, Des Reiches Wirtschaftliche*) (scale, 1 : 10 m.)

Pre-war figures indicate movements from production districts (shaded (4)) to receiving districts (trade districts). Large circle represents 500,000 tons, small circle 100,000 tons. 1. From Middle Elbe basin. 2. From Lower Rhine. 3. From Brandenburg (Lusatia).

Of the metal industries, the manufacture of railroad stock and repair works is located particularly in relation to the great railroad focuses. The manufacture of agricultural implements is concentrated near the principal markets of the chief agricultural areas—the lower Rhine land (Düsseldorf), the middle Elbe basin (Leipzig, Magdeburg), Silesia and south Germany (Augsburg). The electrical industries are chiefly concentrated in Berlin and other large cities, especially in the lower Rhine land. The remaining large variety of machine industries show a marked concentration in four areas—the middle Elbe basin (western Saxony,

Ruhr. It brings out the great importance of central Germany, especially parts of Thuringia and the province of Saxony); Berlin; the lower Rhine land (heavier goods); the Rhine-Main region.

The great variety, complexity and specialization of the machine industries result in an active interregional exchange. Fig. 45 shows the pre-war exchange between the trade districts of Germany, excluding

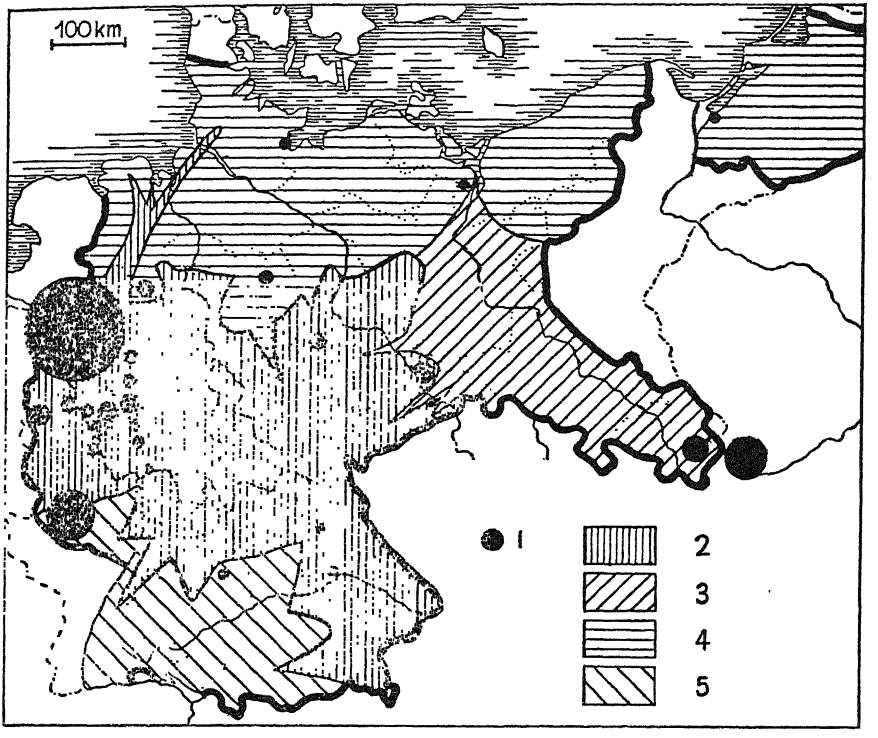


FIG. 44—GERMANY: IRON AND STEEL PRODUCTION AND MARKET AREAS (pre-war) (*from Scheu*) (scale, 1 : 10 m.)

1. 5,000 workers in the industry. Market areas of: 2. Rhineland-Westphalia. 3. Upper Silesia. 4. Lower Saxony and Coast. 5. Saar.

Saxony. From here the largest proportion of goods is sent to Berlin—with very little in return—but there is also a large traffic with Silesia, Thuringia, the province of Saxony, and Bavaria. The closed relationships of the southwestern trade districts and of Silesia indicate the existence here of a fairly contact trade association. The Ruhr specializes in heavier goods. Its chief customers, which send far more to the Ruhr (machinery and tools) than they receive, are Berlin and Saxony. The bulk of its exchange is with the contiguous industrial districts of the lower Rhine. The second and third diagrams (Figs. 46 and 47) show the

trade in machinery of the Ruhr, with central and northern Germany and with western and southern Germany. A remarkable fact revealed here is the close ties between Westphalia and the Rhineland provinces, and the big trade with Saxony and Berlin.

The distribution of the textile industries may be taken as a second example of commercial interchange (Fig. 37, p. 243). Because of

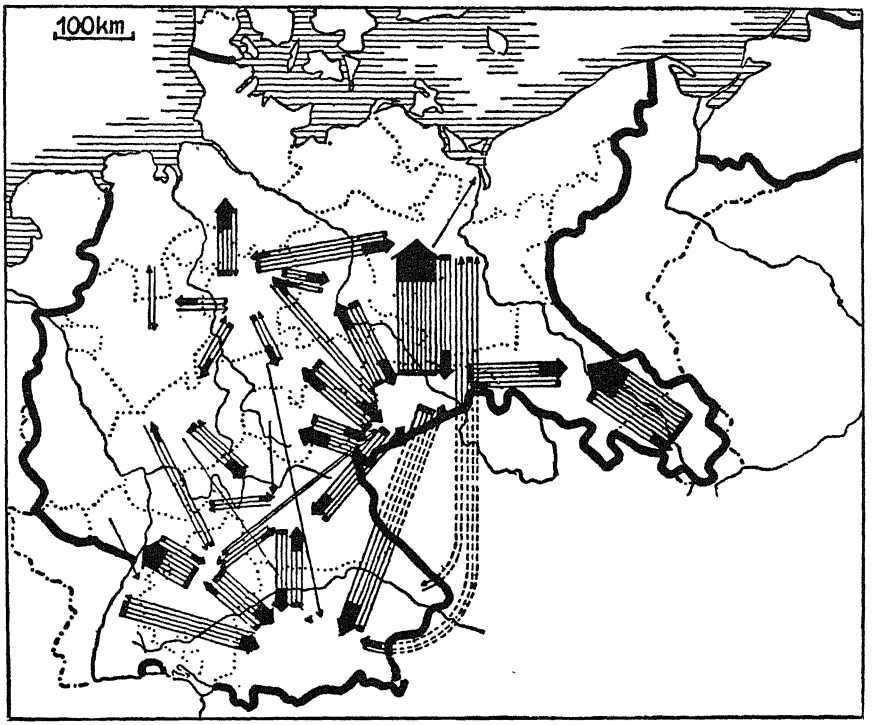


FIG. 45—GERMANY: TRADE IN MACHINERY (pre-war) (*from Scheu*) (scale, 1 : 10 m.)

Pre-war data of movements by trade districts. Arrow indicates direction of movement, each arrow representing 2,000 tons. The trade of the Ruhr is omitted (see Figs. 46, 47).

market concentration and specialization, there is a large exchange of yarns and cloths between the various textile districts. As to the trade in yarns, the lower Rhine region is an independent unit area of interchange; Württemberg is most closely connected with Saxony, Baden and southern Bavaria; Saxony has its closest relations with northern Bavaria (Hof), Thuringia and Silesia. There is also a movement of woven fabrics to the finishing factories. These, too, are specialized and localized. For example, the finishing cotton industry of Silesia treats principally south and west German cottons, which are then sent as finished goods to Berlin; and from Berlin they ultimately reach the consumer through the

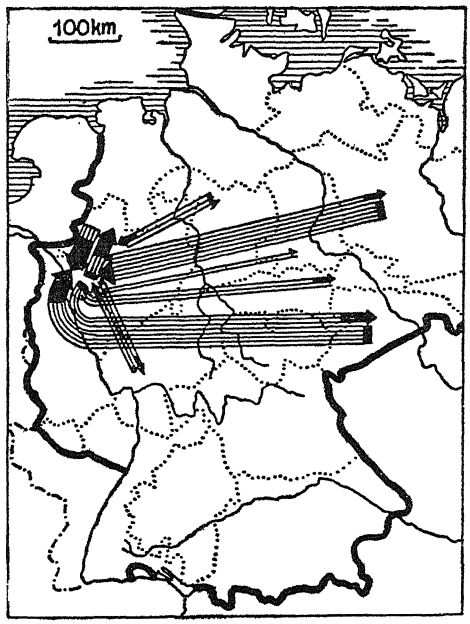


FIG. 46—GERMANY: TRADE OF THE RUHR IN MACHINERY WITH EAST GERMANY (pre-war) (*from Scheu*) (scale, 1 : 12 m.)

Imports and exports of Westphalia (Ruhr area) from trade districts of eastern Germany. Each arrow represents 2,000 tons.

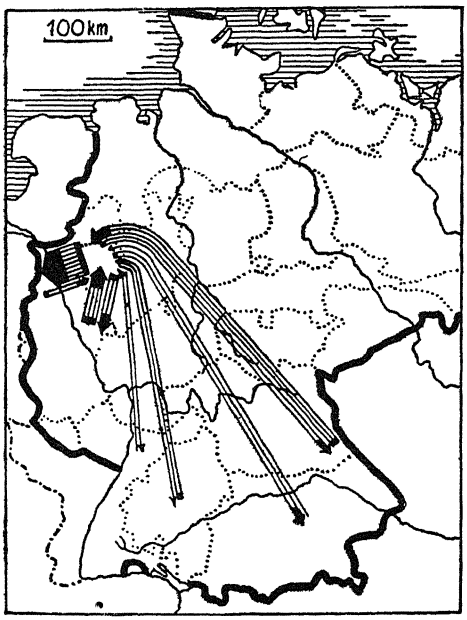


FIG. 47—GERMANY: TRADE OF THE RUHR IN MACHINERY WITH SOUTH GERMANY (pre-war) (*from Scheu*) (scale, 1 : 12 m.)

Imports and exports of Westphalia (Ruhr area) from and to trade districts of southern Germany. Each arrow represents 2,000 tons.

hands of wholesalers. Other areas finish locally produced cloths: for example, the cheap hosiery and clothing stuffs of Munich-Gladbach. Wholesaling is concentrated in the large cities for local and regional distribution. The Saxony area supplies central Germany and the lower Elbe and Baltic provinces; western Germany is supplied from such centres as Wuppertal (i.e. Elberfeld-Barmen), Munich-Gladbach and Frankfurt; and southern Germany from Stuttgart, Augsberg and Aschaffenburg.[1]

PORTS AND THEIR HINTERLANDS

Another form of interregional integration is effected by the sea and river ports. Fig. 48 is an attempt to show the hinterlands of the chief ports.

The trade of Antwerp and Rotterdam is chiefly with the Rhine lands, the connections of the former being mainly by rail, of the latter by the Rhine, by which it is linked with its river ports. Rotterdam is the giant of the Rhine traffic; and almost all of its traffic is in transit to and from Germany—iron ores, grain, oil and timber going upstream, mostly coal, iron and steel goods coming downstream. Antwerp has a vast and varied overseas trade, which in its universality in respect of its character and distribution resembles London. It is the natural port of Belgium, transacting 80 per cent of her foreign trade. But of its total overseas trade between 40 and 50 per cent is in transit. Antwerp lacks a deep canal connection with the Rhine and its transit trade is effected pre-eminently by rail. Like Le Havre, it has the supreme advantage of proximity to the great lane of world shipping in the Channel, and it serves as a port of call for most ships which come to and from the North Sea ports; it has, moreover, in the lands west of the Rhine, the advantage over ports to the east of it, in both distance and cost. Its transit trade is large and extremely varied. It receives vast quantities of iron and steel goods from the Ruhr, potash from Alsace, and miscellaneous goods from the Rhine lands, northern and eastern France, south Germany and Switzerland. In 1939 the railways carried very nearly 1 million tons of goods between Antwerp and Alsace-Lorraine. Moreover, trade by the Rhine between Antwerp and Strasbourg has increased greatly, to over 1 million tons in 1931 in both directions, since the elimination in 1919 of the surtax which is charged on goods imported to France, which have already been handled in a foreign port. Amsterdam, as we have already seen, unlike Rotterdam, is entirely an artificial port. It has not a highly

[1] These maps from Scheu's work are now old, but they are for a good average year in the late 'twenties. There is a wealth of material on this subject of *Verflechtung* in German literature. See bibliography.

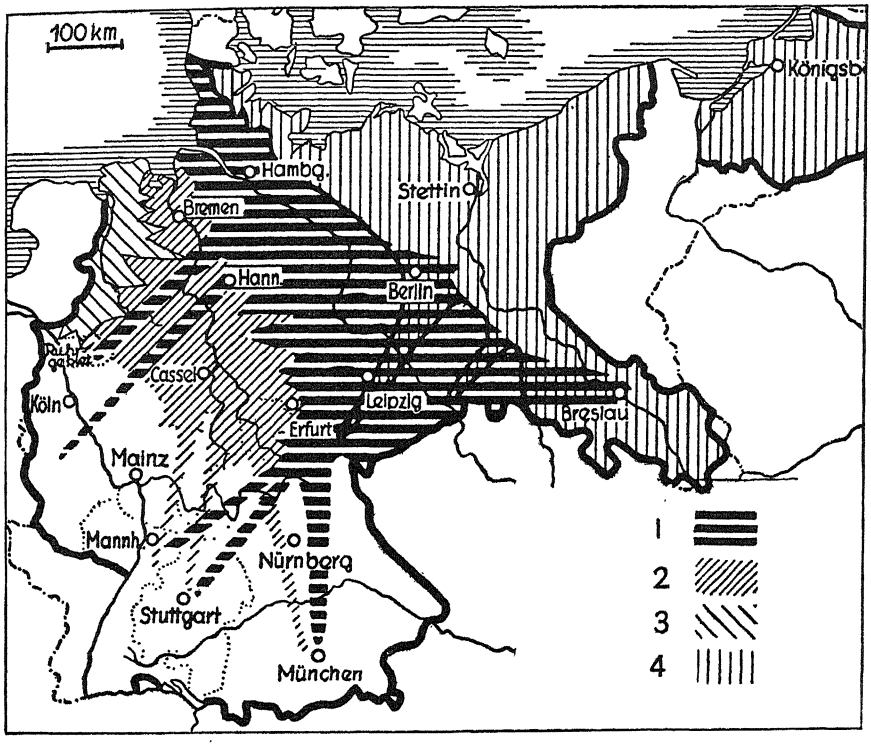


FIG. 48—GERMANY: HINTERLANDS OF THE CHIEF PORTS (pre-war) (*from Scheu*) (scale, 1 : 10 m.)

1. Hamburg 2. Bremen 3. Emden 4. Stetten

See F. W. Morgan's articles in *Trans. Inst. Brit. Geog.*, 1948 and *Geography*, Dec., 1949, for fuller studies.

developed *entrepôt* trade by rail, nor has it a direct deep-water connection with the Rhine, although, like Antwerp, it has aspirations.[1]

We come next to the pre-war trade and hinterlands of the German ports, Hamburg and Bremen. These ports have been favoured by the Reich by all kinds of preferential freight rates, so that the distance factor is often virtually eliminated in order to compete with the ports of Antwerp and Rotterdam in dealing with the traffic of western Germany, and especially with that of Westphalia[2]. Moreover, like Antwerp, both these

[1] The Rhine river traffic of Antwerp normally amounts to some 5 million tons, that of Amsterdam reaches 2·5 million tons. The traffic of the latter is carried by the Merwede canal, which can take 2,000-ton barges.

[2] By reduced freight rates it was sought to divert the cereal traffic of south Germany from Rotterdam to Hamburg. Basel, which is nearer to Antwerp by rail, receives deliveries of skins, cotton and tobacco and coffee from Hamburg. Munich has its geographical distance of 810 km. from Hamburg reduced to 500 km. by reduced freight rates. See Demangeon, *Le Rhin.*

ports are great *entrepôt* centres. Consequently they serve widely scattered populous centres throughout Germany, although it is possible on the basis of traffic statistics to give a fairly precise definition of the extent of their respective hinterlands.[1]

About 18 million tons of goods entered the port of Hamburg in 1929 and 9 millions went out. Five million tons left Hamburg inland by water, of which 85 per cent stayed in Germany. The Elbe system is navigable to Berlin and Magdeburg for 1,000-ton barges and upstream to Prague for 600-ton barges. Through the Havel system it is connected with the Oder. (It has no connection with the Weser, hence the proposal for a Hansa canal to link with the latter and the Dortmund-Ems canal.) Large shipments of coal and smaller quantities of petroleum, wheat and timber went to Berlin (1·5 million tons), and 1·5 million tons to Magdeburg and Saxony (wheat, oil seeds, petroleum and coal). Upstream traffic thus consists mainly of fuel and bulky foodstuffs. Receipts from inland at Hamburg by water are less in weight than dispatches, the total being only about 3·7 million tons, a tenth of which is sand, earth and stone. The great bulk of this traffic comes from Magdeburg and the districts south of it (1·5 million tons), and Czechoslovakia (0·6 million tons). The former sends potash, salts, manures, paper, sugar, glass and briquettes, and refined sugar from Czechoslovakia.

Rail traffic is less easy to analyse since the distribution and collection is more diffuse. It is mainly with the whole of the Elbe basin and eastern Germany. Traffic flows in the Rhine lands, and especially in the Rhineland and Westphalia provinces and Frankfurt area, are peculiar, since these areas are not only geographically nearer to Rotterdam and Antwerp, but the former is also served direct by the Rhine, whereas Hamburg is much further away and has no direct water connection with the Rhine. A variety of special items are sent thither from Hamburg, though small in bulk, but there are large receipts of coal (3 million tons) and considerable quantities of iron and steel goods. These shipments to Hamburg, rather than to Rotterdam, are due to special preferential freight rates. It can be concluded, writes Sargent, that "for many, if not all purposes, both of import and export, the region south of Magdeburg is dependent on Hamburg; the same to be true of the agricultural regions east of the Elbe and south of Berlin and to a much smaller extent of the upper Oder. Beyond the frontier, the Prague region uses Hamburg for special purposes and goods, while Westphalia and the Rhine can only be considered as related to Hamburg artificially. Hamburg is the port for certain areas, either for general or special goods."[1] But it is not the only port.

[1] A. J. Sargent, *Seaports and Hinterlands*, p. 43.

The Baltic ports are dominant in Silesia, Hamburg taking a little more than a quarter of the traffic. Stettin serves Berlin also (mainly to Berlin) but in a very subsidiary degree to Hamburg. The Ems and Weser ports of Emden and Bremen have a special position. Emden has direct contact with the Ruhr by canal and serves it with large quantities of iron ore (2 million tons) from Scandinavia, and receives coke and coal (1·6 million tons). There is no really effective competition with Hamburg. Bremen has inland waterway connections with the Weser (though much inferior to the Elbe) and with the Dortmund-Ems system via the Mittelland canal, by which it receives half a million tons of coal from Westphalia—and again there is no competition with Hamburg. There are three main streams of railway traffic from Bremen—to Bavaria; to Westphalia, the Ruhr, and the Rhine; and southeast beyond Magdeburg to the middle Elbe basin. In addition there is a widely distributed foreign traffic.

There is obviously a wide overlap of Bremen's hinterland with the Hamburg sphere in the east, and the Rhine ports and Antwerp in the west. This latter traffic is in small consignments of raw material (such as cotton), minor foodstuffs and manufactured goods. As an outlet by rail, Bremen receives the large amount of 3 million tons, but three-quarters is drawn from Westphalia and the Ruhr—coal, coke and briquettes, iron and steel goods. Considerable quantities of goods are also drawn from the middle Elbe basin (potash, salt, glass, miscellaneous manufactures). This overlaps again with the Hamburg trade.

Thus in the pre-war picture, Hamburg is dominant beyond the middle Elbe, including Berlin. In the middle Elbe basin south of Magdeburg, the advantage in rail and water is with Hamburg, and Bremen takes less than a tenth of all traffic. Between the Elbe and Weser the movements are complex but rail figures indicate a slight advantage to Bremen. In south Germany, Hamburg leads decisively and has a slight advantage over Bremen in the Westphalian traffic, in spite of the latter's waterway connection. In Silesia and south Germany, the position is that the main traffic has outlets other than Hamburg, although that through Hamburg is not unimportant. Westphalia is a very subsidiary hinterland, and this applies also to Czechoslovakia. These areas are described by Sargent as "subsidiary hinterlands", and in no case can geographical boundaries be defined with any approach to reality.

Rotterdam dominates the traffic on the Rhine and feeds the German ports on the Rhine, notably Duisburg-Ruhr and Mannheim-Ludwigshafen. On the Dutch-German frontier 18 million tons passed upstream from Rotterdam in 1929. About 10 million tons was iron ore and 1 million other ores; 2 million tons of grain, and timber, oil seeds and petroleum. Downstream to Rotterdam moved 15 million tons, 12 millions being coal, coke and briquettes. Railway traffic is relatively small—in, 2

million tons; out, 1 million tons—and nearly all this is with the national hinterland in Holland. It is essentially a coal and ore transit port, but there is some organized marketing of maize, wheat, coffee and pepper, though in Holland it is secondary to Amsterdam and completely dwarfed by Hamburg-Bremen.

Antwerp is essentially a railway port in foreign trade—though it serves the densely populated hinterland of Belgium by rail and water with three-quarters of its overseas trade. As a rail port for foreign trade, Antwerp has no rival in the whole region north of Strasbourg, for rail traffic between Westphalia and Rotterdam is very small. Antwerp is connected with the Rhine by a circuitous route and the improvement of such direct communication is a question of international politics. Antwerp has developed as a great transport centre from rail to boat and has numerous liner connections; it is also a favourite port of call. Its cargoes, in and out, are thus extremely varied and in small consignments, resembling London. About 40 to 45 per cent of the imports and rather more of the exports belong to the international transit movement, and as traffic is affected mainly by rail, it is widely dispersed. Official figures of transit traffic reveal that grain (1·4 million tons) is sent inland to Strasbourg, together with iron ore (2 million tons) to the Saar. Wool is sent to eastern France and in less degree to Germany. There is a great movement of iron and steel goods of German origin (1·25 million tons) and a great variety of manufactured products from the lower Rhine area, eastern France, southern Germany and Switzerland, and even Italy. In this trade, iron ores and grain go up and down the Rhine to and from Germany, but in smaller quantities than in the case of Rotterdam, which is Antwerp's competitor in these commodities. The great bulk of all this international traffic, however, even with Germany, is affected by rail, and the whole structure and organization of the port of Antwerp is designed to this effect.

Thus, the Ruhr is the main hinterland of Rotterdam, while Antwerp has a very large rail traffic with the Ruhr. Away from the Rhine river, in the Rhinelands, Antwerp has the advantage over Rotterdam, but it has to meet the competition of the French Channel ports and of the Mediterranean ports of Marseilles and Genoa.

Hamburg and Bremen share about equally the rail-borne traffic of the Hanover-Brunswick district in lower Saxony, between the Elbe and the Weser. They both draw large quantities of goods from Westphalia, mainly coal, although on grounds of distance and cheapness of water transport Rotterdam would be the obvious outlet; the large proportion of the total trade taken by the German ports, together with Emden, is due mainly to preferential railway rates. But throughout the Elbe basin, as far as northern Bohemia, Hamburg is the main port, although there is a sprinkling of traffic to and from Bremen. The main hinterland of Ham-

burg (i.e. the area in which it transacts the bulk of the foreign trade) also includes Schleswig-Holstein, Mecklenburg, Brandenburg and Berlin. In south Germany both ports draw upon scattered big cities and the scattered seats of industry, again due in large measure to cheap freight rates, as against the Rhine port of Mannheim, but in this trade Hamburg has a decisive lead over Bremen. Both ports also receive and dispatch by rail considerable quantities of goods to and from Switzerland, Austria, and Bohemia.

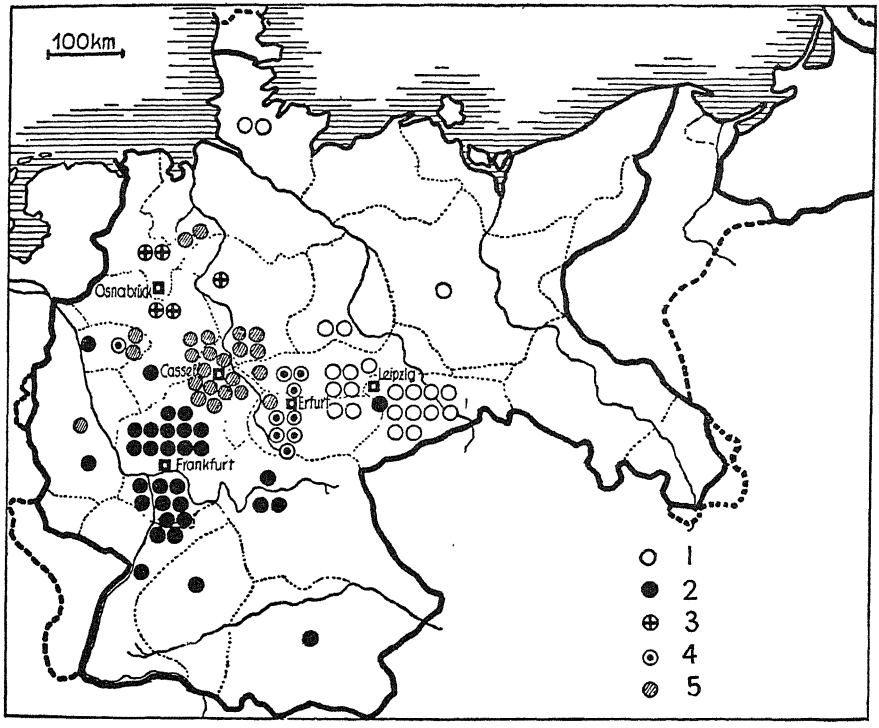


FIG. 49—GERMANY: EXPORTS OF SELECTED CITIES TO TRADE DISTRICTS (pre-war) (*from Scheu*) (scale, 1 : 10 m.)

Movements by trade districts (pre-war). Each circle represents 25,000 tons: despatch of goods from each city to other trade districts.

1. Leipzig. 2. Frankfurt. 3. Osnabruck. 4. Erfurt. 5. Cassel.

It was primarily to divert the iron-ore traffic from Rotterdam that the Dortmund-Ems canal was built (1892–8) and the modern port of Emden created. Traffic on this route reached 9 million tons in 1928. The traffic of Emden reached some 4 million tons, and consisted of coal from Westphalia, and iron ore and coke upstream to Westphalia.

The Baltic ports, of which the chief is Stettin,[1] have a fairly large water

[1] Stettin has a trade of 1½ million tons, mainly imports of iron ore, pyrites and timber.

traffic with Berlin (1 million tons), the main constituents being coal and coke, most of which came from Upper Silesia. While the Oder ports took only a small share of the Berlin-Brandenburg traffic, they monopolized most of the traffic in Silesia by the river and by rail, to the extent of three-quarters of the entire traffic, most of the remainder going to Hamburg.

The North Sea and Baltic ports serve primarily the areas drained by the chief German rivers. To the east, however, is situated Poland, and its foreign trade is mainly concentrated on the overseas ports of Danzig and Gdynia.

COMMERCIAL REGIONS

It is upon a full appraisal of all such material that the following division of Germany into its commercial regions has been based. This subject is discussed at greater length in our book on *The Regions of Germany*. Especial emphasis is given in this study to the regional relations of the principal cities. The rail traffic of several cities is shown in Fig. 49; other cities are studied more closely in later chapters. The regions, as determined from this great variety of evidence, are shown on Fig. 50. These are areas in which all places are closely knit together by trade, transport, and general organization and interest. Trade between their component traffic districts amounts to at least a half of all trade throughout the Reich.

Pomerania and East Prussia. The Baltic provinces have a distinct type of agriculture, characterized by large holdings, a low density of population, and a large suprlus of rye, potatoes and dairy products. They fall into two distinct areas of orientation, however: Pomerania (including Vor Pommern), with its centre in Stettin; and East Prussia, isolated by the Corridor, with its centre in Königsberg. Both these areas, each of them a political entity, have been absorbed by Poland and Russia. Vor Pommern alone remains in Potsdam Germany.

Nordmark. Schleswig-Holstein is closely connected with Mecklenburg, but both are distinct political units of many centuries' standing. Together they are often referred to as the Nordmark. Agriculturally it is dominated by the raising and fattening of stock and by dairy farming. Culturally and in its modern organization, Schleswig-Holstein is associated with Lower Saxony, west of the Elbe. Commercially, it is largely focused on Hamburg, an association strengthened by a community of economic interest with Kiel and Lübeck and by the existence of the Kiel canal. The lower Elbe area is closely affiliated with it. Hamburg, like Bremen, offers a peculiar problem. These two great ports are large isolated urban agglomerations with very specialized functions and interests and enjoy a long-standing political independence as free cities.

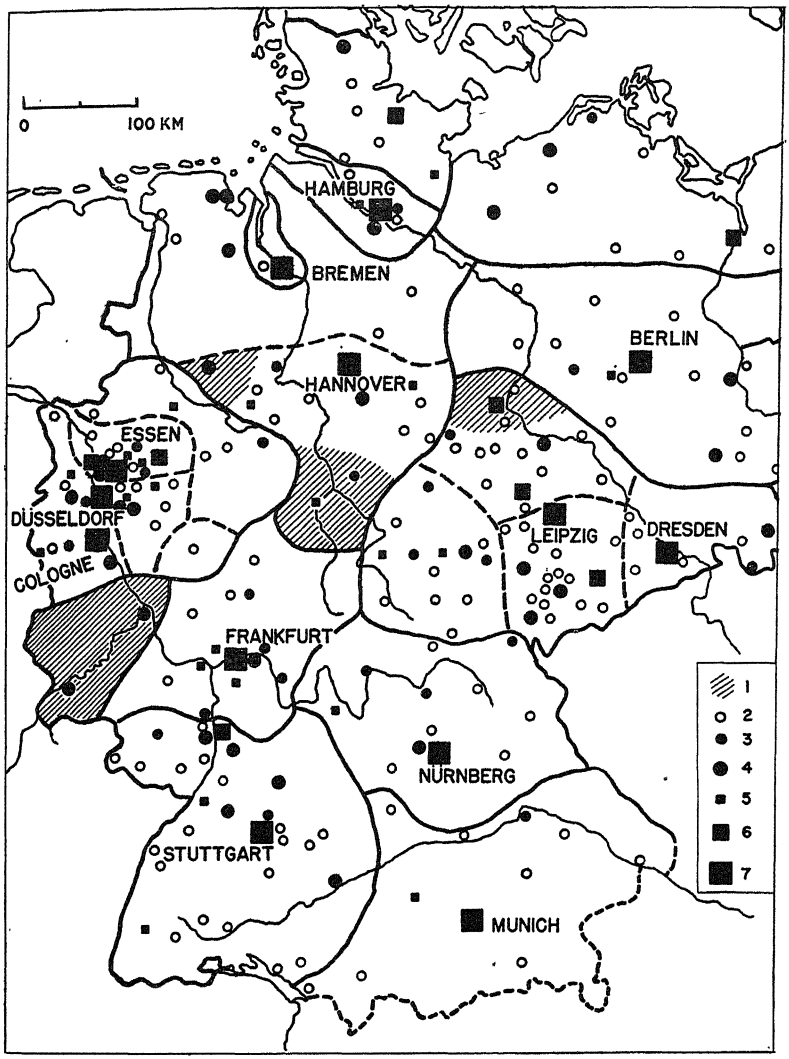


FIG. 50—GERMANY: COMMERCIAL REGIONS AND COMMERCIAL CENTRES (*according to the author*) (scale, 1 : 6 m.)

1. Transitional areas

Persons in centralized urban services:

2. Under 5,000
3. 3–8,000
4. 8–15,000
5. 15–30,000
6. 30–50,000
7. Over 50,000

Sub-divisions of the major regions are shown by dashed lines. The shaded areas have close relations with two or more regions. The commercial centres are defined on pp. 174–6.

The lower Elbe and the lower Weser are, in fact, two distinct economic units, the independent political status of which has been generally advocated in inter-war schemes for a federal Germany. An important step in this direction was taken by the Reich in the spring of 1936 by the extension of the political boundaries of Hamburg to include Altona and Harburg-Wilhelmsburg (the port and contiguous areas on the left bank of the river). Lübeck, long the mistress of the Hanseatic League, also commanded the overland routes across the peninsula. Two canals, built about 1400 and 1500, connected the city with the lower Elbe. Lübeck declined with the decline of the Hanseatic League, and its functions have been acquired by Kiel, which is the terminus of rail and the ship canal across the head of the peninsula, as well as being a naval and shipbuilding base.

Brandenburg is limited to the south by a belt of sandy uplands, that extends from northern Silesia through the Fläming to the Lüneburg Heath uplands. The life of the whole area is tied up with Berlin. With it must be included the lignite-field of Lower Lusatia, which exports the bulk of its production to Berlin either as briquettes or in the form of electricity, and where, too, the textile industries grew up largely in the nineteenth century as offshoots of Berlin firms or through migration from Berlin.

Lower Saxony is a distinct cultural and economic entity which finds expression in most regional organizations. It contains the reclaimed areas of the *Geest* and *Marschen*, important areas of beef and dairying production; the loessic loams to the south, which support a portion of the beet-wheat agricultural belt; an industrial axis based on minerals in the Harz, brown coal in its foreland in the east, and iron-mining near Osnabrück in the west; and, to the south, part of the Central Uplands. It is crossed by ancient and modern routes by land and water, which, running east–west or north–south, have their chief focus in Hanover, the regional capital. The peripheral areas are notoriously transitional. The Osnabrück area, for example, is also closely connected with Westphalia, and the Kassel area with Frankfurt. The region occupies one-tenth of the employed persons of the Reich, and draws its power mainly from coal and gas. This is the new *Land* of Niedersachsen.

The Lower Rhineland (*Rhineland-Westphalia*) has its axis in the coal- and lignite-fields and their related industries. This axis extends almost without interruption from the frontier at Aachen to the eastern extremity of the Ruhr. The transport facilities offered by the Rhine have called into being ancient cities, ports and new heavy industries. The Münster (Westphalian) lowland and the Rhine Massif are brought into the orbit of this urban complex as sources of food supply. The iron-mining area of the Siegerland should also be included in it. The Coblenz area,

however, with its vineyards and quarries, must be regarded as transitional between the Lower Rhineland and the Rhine-Main province. It employs 20 per cent of the working population of the Reich. Out of a total population of some 12 millions, over 50 per cent live in towns with over 50,000 inhabitants. Its railroad net has a density of 184 km. per 1,000 sq. km. It has five cities with 500,000 to 1,000,000 inhabitants (Cologne, Düsseldorf, Essen, Dortmund and Wuppertal) and about a dozen with over 100,000 inhabitants.

The common interests of the whole of the lowland zone is reflected in the extent of the area of the *Ruhrsiedlungsverband*, established in 1921. This area extends from Hamm in the east to the frontier of Holland in the west. Throughout this extensive area the organization has authority to zone and plan communications, open spaces and water supply. Moreover, the whole of the northwestern lowland and much of the Rhine Massif send in food supplies, especially milk and livestock, to the urban areas. Especially significant are the interrelations of the two areas on either side of the Rhine as revealed by traffic returns for trade districts. The Ruhr, together with Aachen, dispatched in 1935 82 million tons of coal, briquettes and coke. Much of this was carried on the Rhine for long-distance shipments, 16·5 million tons reaching the Low Countries, 1 million tons Alsace and Switzerland, 6·8 million tons German ports on the Rhine and the Main, 3 million tons to German seaports and 1·5 million tons to other ports of the lower Rhine. But the railways carried over 50 million tons, of which the great bulk was carried over short distances, over a half being consignments between Rhineland and Westphalia. If we exclude the dispatches to ports and directly abroad then one-half of the total fuel traffic of Germany is carried in this province. Moreover Westphalia is fed with electricity derived from the great generating plants on the lignite-field west of Cologne. These facts emphasize the economic interdependence of the Rhineland and Westphalia provinces and the relative importance of rail and water in their traffic. This is, in effect, the new *Land* of North Rhine-Westphalia.

The Middle Rhine (*Rhine-Main*) has its traditional focus in Frankfurt, which contains about one-sixth of its total population of 4 millions. The heartland is formed by the urban belt Mainz-Frankfurt-Aschaffenburg. The routeway of the Rhine and the continuance of old industries have created a great industrial area—chemicals, leather and engineering. It is also an area of intensive agriculture characterized by small-holdings, with an output of fruits, vines and tobacco. This is the new *Land* of Hessen.

The Southwest. The upper Rhine plain in its productive aspects shows essentially the same features from Mainz to Basel. But the association of its southern portion (south of the middle Rhine region) is eastwards

with Württemberg and westwards with the Palatinate and the Saar. Small family holdings are found throughout, and domestic industries are characteristic of Baden and Württemberg. The capital is Stuttgart; but Mannheim-Ludwigshafen is the chief centre of the heavy industries (chemicals) and the chief river port of the upper Rhine, and serves as the chief distributor of imported supplies.[1]

The overwhelming orientation of the railway goods traffic of the Palatinate to the port of Ludwigshafen-Mannheim is a notable feature. Ludwigshafen has a heavy traffic as a river port, redistributing and collecting from and to the port, as well as servicing its heavy industries (metals, chemicals, timber, paper). The trade of Mannheim as a river port for southwest Germany suffered after 1918 from the cession of Alsace-Lorraine, and the improvement of navigation of the Rhine and of port facilities at Strasbourg to serve these provinces. The bulkiest product passing through the Mannheim-Ludwigshafen district is coal which comes mainly (two-thirds) upstream from the Ruhr—with the balance drawn from the Saar, for distribution in southwest Germany by rail. Coal makes up 60 per cent of its total traffic in industrial goods with the six trade districts of the southwest, mineral oils and chemicals coming second with 20 per cent. The Saar, in spite of its orientation to France between the wars, continued to send coal and semi-manufactured iron and steel products direct to south Germany and to Mannheim-Ludwigshafen.

The direction and intensity of commercial relations may be judged from the movements of workers (*Pendelverkehr*), traffic by rail and water, and the distribution of electricity. In Baden, the two chief centres of employment are Mannheim and Pforzheim. The former draws heavily on workers from across the river in Ludwigshafen and further afield in the Palatinate. The jewellery industries of Pforzheim draw many daily workers from Württemberg. In the latter, Heilbronn is the chief centre, drawing many of its workers from Baden.

Bavaria is usually regarded as a single political unit for nation-wide administrative purposes. But it falls into two parts—northern and southern—which are approximately divided by the Danube. In culture, history and agriculture these two parts are distinct, and each has its own commercial and industrial capital—Nuremberg and Munich respectively.

Silesia, in its pre-war outline, contained a threefold combination of Sudetic uplands (dairying and industry), a heartland of wheat-beet production, and an eastern zone of relatively unproductive country with rye and potato cultivation. Breslau and Upper Silesia are its two principal industrial areas, and Breslau is its metropolitan centre; on three sides its limits are fixed by international frontiers. Silesia was regarded as a

[1] The area consists of the six trade districts of Württemberg, Baden, Bavarian Palatinate, Hesse, Saar and Mannheim-Ludwigshafen.

unit area for most administrative purposes. It is one of the permanent political units of Europe that lies on the borderland of German and Pole, and has fluctuated in its political allegiance between Poland, the Habsburgs (Bohemia) and, since the days of the middle of the eighteenth century, Prussia. Its historical nucleus was the populous loess land in the centre, with its capital in Breslau. The growth of metal-working and later of textile industries in the Sudetes, and later of the great coal-field at its southern extremity, gave it economic diversity and conflicting regional associations that crossed the political frontiers of the Reich. In spite of that it became a highly Germanized province under Prussian rule. World War II has transferred the whole province to Poland.

Central Germany (*Mitteldeutschland*) is the economic epitome and heartland of Germany. It consists of a zone of encircling uplands—Harz, Thuringian Forest and Erzgebirge—and a heartland of fertile lowland—the Saxon Bay. This heartland, and indeed the region as a whole, is bounded on the north by a belt of unproductive uplands, with sandy soils in which heath and pine woods are intermixed with fields of rye and potatoes. The encircling uplands is the site of old, established domestic industries, now often concentrated in factories. The most outstanding are the textile and machinery industries of Saxony and Thuringia. The loess area, with its wheat and beet farming, contains brown coal and salt deposits. The rapid development of these resources led to the growth during and since the 1914–18 war of a vast industrial complex that extends from south of Leipzig to Brunswick. Throughout the region there is a dense route network and an economic interdependence that, as measured by goods traffic, exceeds the relations of its parts with any single neighbour. The chief metropolitan centres are Leipzig, Dresden, Magdeburg and Chemnitz. Leipzig, with its neighbour and competitor Halle, is the geographical focus and the chief commercial centre for the whole region. Saxony, next to the Ruhr, is the most highly industrialized region of the Reich, with over 50 per cent of its population dependent on industry, 17 per cent on commerce, and only 9 per cent on agriculture. Saxony, in particular, is a very large importer of foodstuffs. The whole region of central Germany had 20 per cent of the industrial population of the Reich, consumed 16 per cent of its total power, in which lignite, not coal, was the almost exclusive source of its electricity and fuel supply. This complex today lies in the *Länder* of Saxony and Saxony-Anhalt in the Soviet Zone of Occupation.

CHAPTER 12

THE FOREIGN TRADE OF GERMANY

GENERAL

HIGH POPULATION densities and high urbanization are found throughout western and central Europe from the Alps and the Pyrenees north to the limits of the closely settled lands in the north, which roughly correspond with latitude 60° in southern Scandinavia and Finland. In France, the density of population and degree of urbanization are for the whole country relatively low, but this obscures the fact that there are highly industrialized areas, with large urban agglomerations, concentrated in the northern and eastern departments. In east-central Europe, in all the states from the Gulf of Finland to Greece, the density of population and the degree of urbanization are small; these lands differ from west and west-central Europe in their economic and cultural make-up. Here, metropolitan urbanism is confined to a single big city which in some cases far exceeds the needs of its country—as in the Baltic provinces. In these capital cities are concentrated the bulk of the industry and commerce of their states, and the small country town is an overgrown village, semi-urban in character. Western civilization has penetrated into these lands in varying measure. It is strongest in western Poland, Bohemia-Moravia and, to a less degree, in western Hungary. Thus, the progressive lands of western and central Europe, which are at one in the main features of their cultural background and their modern economic development, characterized by high agricultural and industrial output and the dominance of its commercialized economy by the city, stand in marked contrast to the culture spheres of eastern Europe and Mediterranean Europe. If we include all the chief seats of population and industry in Europe, we find that they are all embraced by a circle with a radius of some five hundred miles and its centre about Cologne—including the British Isles, northern Italy and southern Scandinavia. This whole area has a population of some 200 millions, and 85 millions are engaged in industry.

A large portion of this area on the Continent is characterized by an especially high density of population, a high proportion of urban population, a high agricultural output per acre and *per capita*, a great intensity of industrial production, and, lastly, by the great intensity of commercial circulation, as evidenced by its dense network of railways and

roads. This area is clearly defined on the west by an arc joining Calais, Toul and Geneva, to the west of which, covering the greater part of France, densities are lower, urban population is smaller, and industry is typically pursued in small towns and is of a highly skilled character. The large cities of Paris, Lille, Lyons-St. Etienne, and the ports of Marseilles and Nantes, are the only seats of great industry in rural France. The southern limit of the area is clearly defined by the wide, thinly peopled belt of the Alps, which divides it from the thickly peopled agricultural and industrial region of the Po basin, the economic hub of modern Italy.

To the east, against the widening trunk of Continental Europe, there is not such a clearly marked break in the density of population. On the contrary, there is a wide zone of medium density, which extends from Slovenia, encircles the eastern Alps in Austria and western Hungary, continues through the Vienna basin and Moravia, thence through the industrial area of Upper Silesia, its most thickly peopled section, and thence into southern and central Poland, an area which, north of the Vistula, was as thinly peopled as the rest of the Northern Lowlands in 1871. This border zone is one of considerable fertility and of high agricultural output. Modern industry has extended into it in the last hundred years, and at an accelerated rate since 1918. It is populated for the most part by non-German peoples, mainly Slavs, but its recent economic development has undoubtedly been due in no little measure to German enterprise.

To the east of this eastern border zone we encounter lands which are more thinly peopled, with large areas still available for rural settlement. It is dominantly a zone of agrarian life. Its towns are small and few, and the urban population is less than 20 per cent of the total. Eastern Poland (east of a line from Vilna, Brest-Litovsk and Lwow) has more than 80 per cent of the population engaged in agriculture and less than 20 per cent live in towns, as opposed to the western provinces (Poznan, Lodz and Warsaw) to the west of the line, where the aggregate urban population is 30 and 40 per cent of the total. The Carpathians have scanty population, and in their extreme northwestern periphery the Beskides are a clear limit to the populous area of southern Poland, while the White mountains limit the populous area of Moravia. The middle Danube lands have low densities and large areas are very thinly peopled; the urban density also is extremely low, Budapest being the only large city. Both Galicia, which merges into the Ukraine on the northern side of the Carpathians, and the Alfold within the Carpathian "swirl" are regions of great fertility. They are both devoted mainly to agriculture; they each have a fairly high density of rural population, but their urban population is very small, and the difference between village and town

difficult to define. Throughout this zone of east-central Europe town life is not highly developed, and the town includes a medley of people, among whom the Jew is a conspicuous element, frequently in the majority, and in control of the trade. Corporate life is undeveloped, and public services and social amenities backward as compared with western Europe. The majority of the so-called towns are in fact overgrown villages in which the peasantry make up the bulk of the inhabitants; only secondarily are they markets. In western and central Europe, on the other hand, the town is primarily a seat of industry and commerce, and though it contained a considerable farming element in the past, today this is usually quite negligible.

OVERSEAS TRADE

The dependence of Germany on foreign countries for the supply of its deficiencies of foodstuffs and raw materials and for the absorption of its manufactured products was a feature of its pre-war trade that developed from 1870 to 1913. The aggregate value of imports reached a peak in the late 'twenties and slumped in the early 'thirties. The Nazi programme aimed at the reduction of imports to a minimum and a careful regulation of the kinds of products imported. The value of imports in 1939 reached 6,000 million Reichsmarks, while exports were down to 5,500 million Reichsmarks. These totals compare with 14,000 million and 12,275 million Reichsmarks respectively in 1928, the peak of the last boom period of the German economy. The imports and exports are vital to the sustenance of the economy and to the established standard of living of the people, and though reduced and regulated by the Nazis in the 'thirties, they have retained essentially the same features in kind and geographical distribution throughout the first half of this century.

Immediately before the railway age, Germany's main export was corn, together with oil seeds, vegetable oils, wine, some meat and dairy produce. Merino wool was still sent in considerable quantities to England for manufacture. German manufactures did not yet figure as important items in its exports or in the European markets. This foreign trade changed with the change in economic structure inside Germany. Her trade balance was still "favourable" in the 'eighties, but then it began to turn, and became regularly "unfavourable" during the 'nineties. Her food imports grew steadily after 1890. In the 'eighties Germany spent 40 to 50 million Reichsmarks on imports, but in the 'nineties this nearly doubled, and in 1912 the figure reached 160 millions.

Agriculture has sought to feed the growing urban millions in both essential foodstuffs and luxury produce, and succeeded to the extent of

80 per cent of the country's needs. In the aggregate this proportion was the same in the later 'thirties as in 1914. Germany was self-sufficing in rye, potatoes, meat and sugar. She supplied the greater part of her wheat consumption, but imports varied according to the harvest, and a bad harvest was normally reflected in high imports and vice versa. In bad years, she imported about 30 per cent of her consumption as in 1937, when wheat imports reached 1–2 million tons. There was also a steady increase in imports of eggs and butter and cheese, of which about 40 and 20 per cent respectively of her consumption were imported. Livestock production was intensified (both beef and dairy stock) by using feedstuffs, imports of which have increased fivefold in the last fifty years. Industry, too, reached such a high-level production at the turn of the century that it was dependent on foreign markets for the disposal of its surplus above home consumption. The Reich was also increasingly dependent on foreign sources for the commodities that could not be produced at all or which she did not possess in sufficient quantities.

Foreign trade is a vital necessity to the maintenance of the *status quo* of the economic system of Germany, and there is a remarkable steadiness in the character and proportions of its imports and exports between the wars. Of the imports by value in 1938 roughly 40 per cent consisted of food supplies, 50 per cent of raw materials and semi-manufactured goods, and 8 per cent of manufactured goods. Of the exports, on the other hand, about 80 per cent were manufactured goods and 20 per cent raw materials and semi-manufactured goods.

In 1938 Germany imported 62·6 million tons of commodities. The most important of these, covering 88 per cent of the total tonnage, may be classed as follows as percentages of the total tonnage: ores, 51; coals and coke, 13; cereals, nuts, coffee, tobacco, 11; mineral oils, 9; textile fibres, rubber and pulp, 5; metals, 5; fats and meats, 3; fertilizers and animal feedstuffs, 3. About one-half of these total imports came from overseas through the ports.

The tonnage of overseas exports and imports in 1938 was approximately the same in 1938 as in 1928. In the more recent year the exports reached 15 million tons and the imports 33 millions. Outstanding among the exports were coal (4·3 million tons), coke (1·0) and fertilizers (1·1) and iron and steel goods. Of the imports (33·4 million tons) wheat (0·8), maize (1·6), fruits, (0·5), oil seeds (1·3), iron ores (5·2), coal (4·6), petroleum oil (1·0) and oil derivatives (3·6) were among the chief items.

The foreign trade of Germany, as we should expect of a highly industrialized country with world-wide connections, was widely distributed and was not dominated by any single state, as often obtains in the case of small countries. In other words, extra-European trade accounted for about a half of the trade imports and about three-tenths of the exports.

Overseas trade was dominated by the New World. These countries provided Germany with foodstuffs and raw materials, and absorbed large quantities of its manufactured goods. The United States sent in 1938 large quantities of maize (80), cotton (45), oil (84), wheat (19), and iron ore (25) and copper (50). The Argentine supplied wheat (18), barley (12), oats (8·5), maize (48), meat (24), wool and cotton (45), skins (16) and oil seeds (20). Brazil supplied wool and cotton (77), coffee (58) and skins (17). Chile supplied wool (17) and copper (21). The above figures

Exports (millions of Reichsmarks), 1928–43
(Total and percentages in main groups)

(From *Statistisches Handbuch von Deutschland*, 1949, pp. 392–5)

	Total	*Foodstuffs*	*Raw Materials*	*Semi-processed Materials*	*Finished Goods*
1913	10,087	12·0	13·4	10·7	63·9
1928	12,275	6·4	12·2	12·2	69·2
1938	5,619	1·2	9·5	8·4	80·8
1943	8,588	6·8	13·1	13·0	66·9

Imports (millions of Reichsmarks), 1928–43

	Total	*Foodstuffs*	*Raw Materials*	*Semi-processed Materials*	*Finished Goods*
1913	10,769	38·2	34·9	17·2	9·7
1928	14,001	40·9	28·3	17·9	12·9
1938	6,051	39·5	32·9	18·8	7·9
1943	8,258	40·0	13·5	13·1	32·4

Foreign Trade of Germany, 1928–38
(From *Statistisches Handbuch von Deutschland*, 1949, pp. 410–13)
Geographic Distribution of Imports (millions of Reichsmarks)

	1928	%	1938	%
Europe ..	7,243	51·5	2,966	54·4
Africa ..	710	5·1	385	7·1
Asia ..	1,587	11·3	619	11·4
America ..	4,137	29·4	1,391	25·5
Australia ..	362	2·6	66	1·2
TOTAL ..	14,051	100·0	5,449	100·0

Geographic Distribution of Exports (millions of Reichsmarks)

	1928	%	1938	%
Europe ..	9,053	75·4	3,665	69·7
Africa ..	280	2·3	203	3·9
Asia ..	857	7·1	523	9·9
America ..	1,757	14·6	811	15·5
Australia ..	76	0·6	49	0·9
TOTAL ..	12,029	100·0	5,257	100·0

The principal participants in the American trade (1938) were the United States (exports 149, imports 404), Argentine (exports 147, imports 216), Brazil (exports 161, imports 214).

Imports by Commodities, 1933–37 (from *Statistisches Handbuch von Deutschland*, 1949, pp. 396–400)

Column (1) shows thousands of tons, column (2) millions of Reichsmarks.

	(1)	(2)		(1)	(2)
Live Animals	110	62·6	*Manufactured*		
Food and Drinks	4,551	1,125·0	*Goods and Semi-manufactured*		
Wheat ..	574		*Goods*	39,563	2,244·8
Rye	143		Wool ..	158	
Barley ..	249		Cotton	389	
Oats	64		Flax	229	
Maize ..	651		Animal Fats ..	196	
Rice	236		Timber	2,376	
Vegetables ..	278		Coal	4,452	
Fruits (non-citrous) ..	361		Lignite	1,700	
Citrous Fruits	532		Coke	663	
Coffee ..	152		Mineral Oils ..	3,600	
Fish	226		Phosphates ..	877	
Food Materials	2,272	444·2	Stones and Earths	1,795	
Tobacco ..	124		Iron Ores ..	13,198	
Oil Seeds ..	1,834		Sulphur.. ..	1,072	
Oil Cake ..	224		*Finished Manufactured Products*	1,240	610·0
TOTAL	6,953	1631·8	TOTAL ..	40,803	2,854·8

are all in millions of Reichsmarks. In return these countries absorbed German manufactured products.

Of the imports, about a third of the butter came from Denmark, half of the cheese from the Netherlands; meat came from the Argentine and Uraguay, Poland and Denmark; eggs from Denmark and the Netherlands; maize from the United States and Argentine; non-citrous fruits

from Bulgaria, Italy and Turkey; citrous fruits from the Mediterranean lands; cocoa from British West Africa, Brazil and Ecuador; edible oils, fruits—a large import—from British tropical lands and Manchuria; coffee from Brazil and central America; tobacco from Bulgaria, Greece, Turkey and the Netherland East Indies; and wine from Italy. Wool came from the Union of South Africa, Australia, Argentine, France and Belgium; cotton from Brazil (the biggest contributor), the United States and Egypt; flax from Italy and British India; hides and skins from Argentine and Brazil and other South American countries in smaller quantities; timber from the Soviet Union and Finland; rubber from British Malaya and the Netherlands East Indies; iron ores from Sweden (in largest quantities), manganese from South Africa and the Soviet Union; sulphur from Spain; bauxite from Yugoslavia and Hungary. This great diversity of imports and the world-wide areas from which they were drawn is indicative of the highly evolved and complicated structure of the German economy. And the same was true of the world-wide distribution of its manufactured products.

GERMANY'S EUROPEAN TRADE

Germany occupies an intermediate position between western or maritime Europe and eastern or continental Europe. Western Europe in this sense includes the lands which are centred on the Atlantic. The destinies of these lands lie on the seas; each state has a colonial empire; each has a large trade with its own and other tropical lands. Each has a maritime climate, which, coupled with the pressure of population, accounts for its specialization in pastoral farming. In this area lies the western end of the great coal belt. Here, too, especially in the Low Countries, converge natural land and water routes, which permitted the development of medieval industry and trade. Today Britain, Belgium and northern France are highly industrialized states. East-central Europe —eastern Poland, the Danube lands and the northern Balkans—has a relatively simple structure. These lands are dominantly agricultural; they are essentially producers of grain and natural products. They possess also certain mineral and metal resources such as oil, magnesium and copper, but are deficient in coal and iron; timber resources are drawn from the Carpathians and the Balkan uplands in Poland and Yugoslavia respectively. In northern Europe the forests which are dominant north of latitude 60° supply large exports of timber and paper pulp. Forest products are the chief exports of Finland, Sweden and Norway (80, 40 and 33 per cent of their exports respectively). Their farm lands are mainly devoted to hay and pasture, oats and flax, and, since the lands

on the Baltic shores are in a climatic sense an extension of the North Sea lowlands, surpluses of dairy produce are exported as well as flax, especially from the Baltic provinces. To the south, in Mediterranean Europe, corn, wine, olives and tropical fruits make up the chief export surpluses of these agricultural lands. These lands are notably deficient in the raw materials of industry—coal, iron and oil, and northern Italy is the only large seat of industry in the three southern peninsulas of Europe. By far the most important manufacturing industries are the iron and steel and textile industries.

Germany has dominated, or has been a chief partner in, the foreign trade of its border states. Germany lies astride maritime and east-central Europe. Her northern coastlands share the same feature of rural economy as Denmark, Holland and the Baltic states. Here, too, she has her outlets overseas through the ports of Hamburg, Bremen and Emden, although a large part of her foreign trade passes through the Low Countries; and through the Baltic ports she has contact, like Poland, with northern Europe. With the growth of industry and population she became increasingly dependent both on overseas and European markets.

It will be well to cast a glance on the general significance of Europe in the world's trade and of Germany's particular place in it. All figures are for 1937. Europe, excluding the U.S.S.R., was responsible for one-half of the value of the world's total of exports and imports. Germany was responsible for 8 per cent of the world's imports and 9·1 per cent of the world's exports, and 8·56 per cent of the world's trade, as compared with 17·18, 9·91 and 13·64 for the United Kingdom, and 10·97, 12·66 and 11·79 for the United States.

The proportion of Germany's foreign trade transacted with the United Kingdom amounted to 5·7 per cent of her imports and 7·3 per cent of her exports. Her trade with France was extremely small, amounting to 2·9 per cent of Germany's imports and 5·3 per cent of her exports.

The Low Countries (Belgium and Holland) accounted for 7·6 per cent of her imports and 12·8 per cent of her exports. Holland was her greatest single customer (7·9 per cent), a fact which clearly demonstrates the importance of Holland as a market, but particularly as an avenue of transit for German goods to overseas markets.

The Baltic states (Sweden, Norway, Finland and Denmark) took 10 per cent of Germany's imports and 12 per cent of her exports. Poland, with a population approximately equal to this group, took only 1·5 per cent of the exports and imports. Rumania, Hungary and Bulgaria took 6·7 and 5·3 per cent of her imports and exports; with Yugoslavia, this group was probably equal to the Baltic group. Switzerland, Czechoslovakia and Austria together took 6 per cent of the imports and 8·6 per cent of the exports.

The Mediterranean countries (Spain, Italy, Turkey) accounted for 8·2 per cent of her imports and 8·4 per cent of her exports.

The most striking feature of these figures is the great importance in the foreign trade of Germany of the Low Countries, especially Holland, the Scandinavian countries, and the south European countries. The first serves as an outlet overseas via the Rhine route and via rail. The second receives large quantities of goods of small bulk but high value through the great *entrepôt* port of Hamburg, which together with the Baltic ports receives timber, pulp and ore in return. Southeast Europe receives German manufactured goods, and sends in return food and minerals; this trade in particular greatly increased in the 1933–9 period, when Germany virtually acquired a monopoly of their trade.

These foreign trade relations may be expressed alternatively by taking the proportion of the trade of each group of countries that was transacted with Germany, noting, by way of comparison, the relative importance of the latter's chief competitor, the United Kingdom.

In the Baltic bloc, the United Kingdom is a chief competitor, with Germany taking a slightly greater percentage of the trade of each country, and this is also true of Latvia, Lithuania and Esthonia. The aggregate imports of six countries of southeastern Europe, that may be classed as non-industrial countries, are shown in the table below.

Contributors to the Import Trade of Six Non-industrial Countries of Southeastern Europe[1]

	Imports	*Exports*
Germany	32·8	26·4
United Kingdom ..	7·6	8·5
United States ..	5·9	5·8
Italy..	5·4	8·2
France	2·6	4·0
Austria	8·6	8·8
Czechoslovakia ..	6·4	6·0
Others	30·7	32·3
TOTAL	100·0	100·0

Germany took about 30 per cent of the entire foreign trade of Hungary and Rumania, and over 50 per cent of Bulgaria's. In each of these countries the British share of both imports and exports was between 5 and 10 per cent. In Greece, Germany enjoyed a similarly large proportion. Her trade with Bulgaria amounted to over 50 per cent of the total,

[1] The countries are Bulgaria, Greece, Hungary, Rumania, Turkey and Yugoslavia. *Review of World Trade, 1937*, League of Nations Publications.

and she dominated similarly the Turkish trade, where the British share of its exports was negligible, as compared with 10 per cent of its imports. Germany thus completely dominated the foreign trade of these small states of southeast Europe, where it competed with local products and the exports of Austria and Bohemia. The British contribution was quite negligible. The proportion of German trade increased during the Nazi trade drive of the late 'thirties, but German dominance has been the normal state of affairs over the last fifty years. In the case of the Low Countries Belgium did a little over 10 per cent of her export and import trade with Germany, and Holland a higher proportion, 21 per cent of her exports and 15 per cent of her imports. Only in Holland's exports does the British normally exceed the German share, though in the case of both Holland and Belgium the latter is considerable. Britain's share of Belgium's trade was normally much the same as that of Germany, and while Holland, though exporting large quantities of foodstuffs to Britain, is mainly oriented towards Germany on the basis largely of propinquity and its command of the Rhine mouth, Belgium is very closely tied up in its economic relation with France and Britain.

A large proportion of the foreign trade of Austria, Czechoslovakia and Switzerland, some 20 per cent or more, is normally with Germany, whereas their trade with the United Kingdom is very small. The economic orientation of these three countries with regard to their foreign trade is directed overwhelmingly northwards to the North Sea ports. The Mediterranean ports of Marseilles, Genoa and Trieste take negligible proportions of their foreign trade, for, in spite of the proximity of these ports by rail, the Alpine crossings add greatly to transport cost, whereas the North Sea ports have superior steamship connection, and are accessible, too, from Switzerland and Bohemia, by the Rhine and the Elbe. Switzerland's connections are overwhelmingly with the three northern states of Germany, France and the United Kingdom; and the United States is also a big purchaser of Swiss manufactured wares. The bulk of Swiss imports of food, cereals, coal, coke and petroleum come via the Rhine through the ports of Strasbourg, Mannheim and Basel. In total, the Swiss traffic with the Mediterranean ports, Marseilles, Genoa and Venice, totals only about a quarter of the total movement of Switzerland's foreign trade.

The orientation of Austria and Bohemia is directed largely to the Danube lands, while, economically, there is a good deal of interchange between these two and Poland, and with Italy, largely on account of the movement of coal from Upper Silesia.

This examination of the foreign trade of Germany and its bordering states in the 'thirties reveals that the countries of west-central Europe are intimately associated and interdependent, in so far as their trade is

oriented towards Germany. The trade of Germany extended far beyond its border states, however, to the non-industrial lands of Scandinavia, Poland, and southeastern Europe, in which areas she shared the trade with Britain in the first and second, and dominated that of the third. The northern states and Switzerland have close relations with Germany, especially Switzerland and Holland, but the orientation of Denmark and Belgium is dominantly westwards to Britain and France. Lastly, the southeastern border states of Switzerland, Austria and Czechoslovakia are dominantly oriented towards the German North Sea ports in their foreign overseas trade; but find markets for their manufactured goods and sources of their food supply in the Danube lands. They therefore found their chief competitor in Germany, their western neighbour.

Austria and Czechoslovakia had a large foreign trade with the Danubian lands, which, in its great importance to their national economy, clearly distinguishes them from Switzerland. There was also an active interchange between Polish Upper Silesia, Bohemia-Moravia-Silesia in Czechoslovakia, and eastern Austria. This trade centres on the exchange of coal and coke from Upper Silesia, and the iron surplus of eastern Austria, while Vienna functioned, as it did before 1914, as an *entrepôt* for Czech wares from the Danube lands. There was also a very large through traffic of coal from Polish Silesia to Italy.

The close interdependence of these three areas is a very marked feature, and the zone of population density, as of traffic movement, runs along an axis from Polish Upper Silesia, through Bohemia-Moravia and the east Alpine foreland via Vienna, thence by the main route across the Semmering Pass to north Italy.

SELECTED INTERNATIONAL COMMODITY MOVEMENTS: COAL, COKE AND IRON

The whole of western and central Europe, as far as and including western Poland, Bohemia and Austria, has a close railroad net, so that every place is within ten miles of a railroad. To the east of this area—in eastern Poland, Slovakia and the Danube lands—railroads are fewer, and considerable areas lie further than this distance from the nearest railhead. This is one of the basic distinctions between the closely settled land of high mobility in the west and the more thinly peopled, backward lands, where, over large areas, there prevail a sustenance farm economy, little industry, and low mobility of both persons and goods. It is a main difference between West and East sections of Central Europe. But a uniform railway net and a similarity of industrial or agricultural production of neighbouring lands do not necessarily mean unity of commercial

organization. The density and direction of traffic is determined in the first place by local integration around the urban centres, and secondly, by the long-distance movement of goods.

The Rhine lands contain the chief seats of iron-ore and coal production in Europe. The Lorraine field lies to the west, in the middle basin of the Moselle. The coal-fields form an east–west belt on the northern border of the uplands, with the French-Belgian field to the west of the Cologne "Bay", and the Ruhr field, the giant of production, to the east of the river, but in direct touch with it by canal. Lorraine and the Ruhr are equal in their production of pig iron (10 million tons); but the Ruhr leads in steel production by over 50 per cent, and its finishing industries are more than double those of Lorraine. The whole of the Lorraine field produces some 50 million tons of ore, of which 20 millions are consumed in the local furnaces. Of the remainder, much is distributed throughout France. Of the exports of ore to foreign countries in the mid-'thirties, the Saar took 4·5 million tons; the industrial belt of Belgium, 10 million tons; the Nord, 3 million tons; the Ruhr, 3 million tons. The Ruhr import compares with 4·5 millions in 1913. With regard to ore, the closest link of Lorraine is with the western end of the coal belt in the Belgian Sambre-Meuse and French Flanders. But only ten per cent of the Ruhr imports come from Lorraine. The great consumption of the Ruhr is met mainly by imported ores, which come up the Rhine and, secondarily, the Dortmund-Ems canal. This reached a total of 20 million tons in 1937.[1] Sixty per cent came from Sweden.

Coke (or coking coal) is the other main item in the iron-smelting industry. The Ruhr is the giant of production, accounting for some 27·5 million tons in 1927, as compared with 4 millions in France (nearly all of which is made in the Nord), 5·5 millions in Belgium and 2 millions in the Saar. The Lorraine field consumes something in the order of 10 to 12 million tons. In 1913 the Ruhr supplied three-quarters of the lot; in 1927, a half came from the Ruhr. Belgium and Holland supplied about 1 million tons each, and Belgium, too, in spite of its own production of 6 million tons of coke, imported some 3 millions from the Ruhr, to smelt her imports of ores from Luxembourg-Lorraine. It will be clear that this enormous movement of iron, coke and coal cannot use the Rhine. Moreover, the rivers Meuse and Moselle are not navigable. The Rhine-Marne canal carries much traffic between Lorraine and the Nord. Iron ore and coke were sent via the canal route to Strasbourg, for transhipment to Rhine barges, Ruhr coal in particular being coked at this break-of-bulk point before being dispatched to Lorraine. But the greater part of this

[1] German domestic production was small but was increased by the Nazis to 11 million tons. The sources are the Sieg, Lahn and Dill valleys, and the Peine-Salzgitter district in Hanover, on the Mittelland canal, where the Göring works have been built.

traffic from Lorraine had perforce to use the railway to Belgium to the Nord, or to Strasbourg for transhipment to the Rhine.

The Ruhr coal-field and the German Lorraine iron-ore field were developed as complementary industrial areas before 1918, exchanging fuel and iron. The annexation of German Lorraine to France in 1918 gave her a bigger iron-ore production than she could digest, and an insufficiency of coking coal. The readjustments were made by importing more coke, and sending more iron to Belgium, Holland and northern France. Between the wars, on the other hand, the Ruhr reduced its imports of Lorraine ore. There has developed, in other words, closer collaboration between the coal-fields and ore-fields in the Low Countries and in France. The Ruhr, on the other hand, was obliged to turn to greater imports of foreign supplies. But there is an essential economic dependence of all these seats of coal production on the iron-ore field of Lorraine, an interdependence which cannot be thwarted by tariff barriers.

With respect then to the long-distance movement of commodities from one industrial area to another—and here the two chief single commodities are coal and iron—and to and from the overseas ports, we would specially emphasize the essential economic unity and interdependence of the whole of the Rhine lands. This includes the Low Countries, western Germany, eastern France—the Nord and Pas de Calais, and Alsace and Lorraine. The medium of this traffic is the Rhine river and its navigable tributaries, and interconnecting canals, and the network of railways. The river is, in effect, an extension of the sea as far as Strasbourg, and its ports function as feeders for the railways in their vicinity. Moreover, the Rhine is flanked to the east and west by the greatest industrial areas in Europe. Duisburg-Ruhrort alone handles one-third of all the inland water traffic of Germany (20 million tons), importing vast quantities of ore, grain and petroleum up the Rhine, and sending out coal, both up and down stream. Mannheim-Ludwigshafen handles about 7·5 million tons. In the middle Rhine lands, the four chief ports are Mainz, Mannheim-Ludwigshafen, Strasbourg-Kehl and, very much smaller than the rest, Basel. Mannheim and Strasbourg each serve distinct hinterlands, southwest Germany and Alsace-Lorraine respectively. In addition, however, they both supply Switzerland by rail with its bulky imports of coal and cereals. There is also a growing traffic from Strasbourg to Basel by the Rhine-Rhône canal, so that Basel serves as an important distribution centre for northern Switzerland. (It imported 1·7 million tons in 1933; whereas in 1914 the figure was only 70,000 tons.) Through these three ports, then, Switzerland receives the greater part of her coal, wheat and petrol.

GERMAN COAL IN INTERNATIONAL TRADE

We may turn, in conclusion, to a more specific consideration of the role of coal in the foreign trade of Germany and its neighbouring countries. International trade in coal is of basic significance to the economies of the states of western and central Europe, and its revival to the pre-war level, adjusted to the new situation brought about by changes in political frontiers, is one of the most urgent problems of contemporary Europe in which western Germany must inevitably play a major role. Let us glance at the geographical aspect of this situation.

Europe outside Russia consumed in pre-war years nearly 300 million tons of hard coal and 220 million tons of soft or brown coal, 40 to 50 million tons of fuel wood, 8 million tons of petroleum (including 7 millions from Rumania), 9 million tons of imported oils, 1·8 million tons of natural gasolene from European wells and 2·4 million tons from overseas, and 600,000 tons of benzol from coke ovens and 3 million tons of synthetic gasolene from coal. Two-thirds of the electric energy consumed was derived from coal. In the post-war situation western Europe is virtually cut off from supplies of coal, oil and wood in Europe east of the "iron curtain" from Lübeck to Trieste, so that it is dependent on its own resources.

As we have seen in the introductory paragraphs, coal resources are unevenly distributed and the countries of northern Europe, Mediterranean Europe and Danubian Europe depend largely on imported supplies of coal or on other sources of power, the chief of these in northern and southern Europe being hydro-electric power. The export market in coal is dominated throughout Europe by its four main fields. The fields of Britain are so close together and so near the sea and so far affected by common conditions that they may be regarded as a group, although in fact the South Wales and the Northumberland-Durham fields are the two chief exporters. Britain produced in 1937 an aggregate of 240 million tons. The Ruhr field of northwestern Germany produced in 1937 128 million tons. The Upper Silesian field produced a total of some 80 million tons, two-thirds of which total production was in Polish territory between the wars, the remainder being in Germany and Czechoslovakia. It produced in aggregate not far less than the Ruhr, and is an equal potential producer. The fourth main field is the Donetz field in the Ukraine of Russia. The fourth and third do not enter into the markets of western Europe. The German Silesian field marketed some of its coal in eastern Germany and the Czechoslovak sector still finds a market in Czechoslovakia. But between the wars the bulk of the coal production in the Polish field was marketed in Poland and in Danubian Europe, and Poland was so far embarrassed by surplus supplies that

there was a large export through Gdynia to the Scandinavian countries. In 1947 Poland produced 64 million tons, of which 20 million tons were exported, the bulk of it to Scandinavia. She is now also in possession of the German sector with a production of some 20 million tons.

In studying the coal situation in western Europe we are in effect, therefore, concerned with the export of coal from Britain and from the Ruhr field of Germany. In 1913, Britain exported about 73 million tons of coal plus 3 million tons of coke. Sixty million tons were dispatched to Europe and the Mediterranean. These supplies reached the European mainland through the Continental ports. Germany exported 45 million tons, the great bulk of which obviously came from the Ruhr and moved by the Rhine and by canal and by rail. British coal, however, was able to compete in Hamburg, and even in Berlin, with coal brought all the way from either the Ruhr or Silesia. Thus, Germany imported in this year 9 million tons from Britain. Thus, in 1913, two-thirds of the European coal deficit was supplied by Britain and one-third by Germany. The German supplies were distributed by river, canal and by rail and dominated the Continental markets, whereas the British supplies penetrated from the ports inwards, as is well illustrated in the case of northern Germany just noted. At this time, too, it should be recalled that half of the Lorraine iron ores belonged to Germany, and the big export of coal and coke thither from the Ruhr does not figure in these international statistics. At this time, the Baltic states imported 15–16 million tons and most of this came from Britain. France imported 20 million tons and 4 million tons of coke, and of this 13 million tons of coal came from Britain through its ports, while the rest came from Germany (and a small quantity from Belgium), mainly by rail. Austria-Hungary imported 14 million tons, that included 1 million tons of British coal through Trieste, the rest being derived from Silesia, which found its undisputed market in these Danubian lands. Italy imported 8–10 million tons, all of which came from Britain, and Holland 8 million tons, almost all of which came down the Rhine from the Ruhr.[1]

We may next look at the position in 1937 on the eve of World War II.[2] The position after World War I was in some ways similar to the present post-war situation, in that markets and supplies were temporarily disrupted. The British fields were then able to export again (though in smaller quantities) and the German exports soon revived. But the temporary vacuum was filled, as is the case today, by the export of coal from Pennsylvania via a long railway haul of several hundred miles to the American Atlantic ports and thence across the Atlantic, a movement that

[1] A. J. Sargent, *Coal in International Trade*, London, 1918.

[2] See *The Mineral Industry, 1941*, Vol. 50 (McGraw Hill, New York), and L. Dudley Stamp, "Britain's Coal Crisis", *Geographical Review*, April 1948.

was able to take advantage of the inflated prices in Europe that were due to the scarcity of British and German coal in the early 'twenties.

The situation in 1937 was that Britain exported 52 million tons of coal, of which 12 millions was bunker coal; in other words, about 40 million tons went to Europe, as compared with 60 million tons in 1913. This compared with an export of 38·6 million tons from Germany, 11 million tons from Polish Silesia and 6·3 million tons from the Netherlands. The exports of Britain and Germany to European countries in this year may be summed up as follows:

Exports of Britain and Germany

Britain (1938) *(in thousands of long tons)*		*Germany* (1937) *(in thousands of metric tons)*			
U.S.S.R. and Succession States	1·86	Finland	0·180	Algeria	8·040
Sweden	2·65	Latvia	0·120	Switzerland	0·475
Norway	1·37	Lithuania	0·300	Yugoslavia	0·449
Denmark	3·00	Czechoslovakia	0·648	Sweden	0·631
Netherlands	0·89	Poland and Danzig	1·107	Norway	0·305
Belgium	0·66	Netherlands	6·834	Denmark	0·594*
France	6·15	Belgium-Luxembourg	0·169	Portugal	0·316
Portugal	0·71	Hungary	0·980	Spain	0·703
Spain	1·00	Austria	0·543	Italy	7·930
Italy	2·26	France	5·380	Greece	0·613
Greece	0·14				
TOTAL	36·0			TOTAL	38·6

*1938.

From L. Dudley Stamp, "Britain's Coal Crisis", *Geographical Review*, April 1948. The long ton contains 2,240 lb. and the metric ton 2,204·6 lb.

The critical nature of the situation since 1945 will be apparent from these figures. British coal exports have temporarily gone. This export trade was the foundation of Britain's economic development and the basis of its economic life as developed during the nineteenth century. This means also that the European countries dependent on these British coal supplies are lacking in the basis of their economic life. This situation is made even more serious by the fact that the coal exports from the Ruhr were reduced to nil after 1945, so that the Continental countries were also deprived of their German sources of coal. Production of coal in Britain reached 220 million tons in 1947 with exports virtually nil (less than 1 million tons); although the production goal for 1948 was 236 million tons with an export of 11 million tons, this is still well under a third of the pre-war export.

Coal Imports into Western Europe (in thousands of metric tons)

(Source: "Coal in Europe", *World Affairs*, March 1948, p. 115)

Country	*Pre-war Monthly Average*, 1935–8	*Current Imports Average Monthly by E.C.O. (Jan.–March* 1948)	*Per cent of Pre-war Average*
France	1,997	1,756	88
Belgium	525	534	102
Netherlands ..	702	429	61
Norway	255	176	69
Denmark	473	367	78
Sweden	654	507	78
Italy..	1,099	805	73
Luxemburg ..	254	209	82
Switzerland ..	273	156	57
Other Countries ..	687	421	61
TOTAL ..	6,919	5,358	77

In 1947 Germany produced 94 million tons (with an additional 174 million tons of lignite, as compared with the 1937 output of 184 million tons of lignite). The exports of coal from Germany in the same year amounted to 13·2 million tons (excluding, of course, Upper Silesia that now lies in Poland), as compared with the pre-war total of nearly 40 million tons (1950, 16 m.). Hence the plight of the coal importers, such as France in particular, whose dearth of coal is always a national economic problem, as well as Italy and the small states on Germany's frontiers. The situation in Scandinavia is relieved by the import of coal from Poland. The economic existence of these western countries depends upon their coal imports. The gap is in some measure being again met by supplies from the United States, but this is obviously not a permanent solution to the problem. About 40 million tons from the United States were needed in Europe in 1948, although, according to the Marshall Plan of the sixteen participating countries, this was to be progressively reduced, as European production increased, to only 6 million tons in 1951. The revival of Europe depends upon the resumption of exports of coal from Britain and western Germany, and this means in Germany, the Ruhr, that has now wellnigh a monopoly of German production.

TRADE IN AGRICULTURAL PRODUCE

Cereals, dairy products and meat together with animal feedstuffs are indispensable imports to Germany in order to supplement home production. These imports were greatest in the late 'twenties when Germany shared in the general improvement of world trade, and when it was still in process of reinstating its agriculture and replenishing its depleted stock. In the 'thirties, however, the import of these products greatly decreased, partly as a result of the depression and the shortage of foreign exchange, but, especially as concerns meat supplies, as a deliberate policy to keep out foreign meat and increase home production. In years of good harvest, Germany's wheat crop, together with rye, is sufficient to meet the home demand. Germany's import of cereals thus varies considerably according to the home harvest, and in time of good years she could in the aggregate almost dispense with imports. On the average she imported about a quarter of her total consumption of wheat. In rye she is virtually self-sufficing. Her imports of dairy produce show a steady increase over the past fifty years. In 1928–31 she imported about 20 per cent of hsr consumption of dairy produce, and over a third of her eggs. During the 'twenties she imported large quantities of pork and beef, the two chief items of German meat diet (consumption of mutton being quite negligible). Both meat and slaughter cattle were imported in the 'twenties, since her own stocks and production had not recovered from the havoc wrought by World War I. By 1930, the 1913 level had been attained, stocks replenished, breeds improved, and the production of fodder increased. In order still further to increase home production, and partly owing to general world conditions during the depression and the lack of foreign exchange, this development was further encouraged by the re-erection of the custom tariff against imported meats.

Thus, imports were at their peak in the 'twenties and decreased in the early 'thirties. But in spite of the decreased import of meats, there was no diminution in consumption per head of the population. Home production went far to fill the gap, a fact which is found in other importing European countries in the same period. This was effected in part by the increased production of domestic grasses and pastures, but also, what is more significant, by the import of feedstuffs. Though these imports also decreased in the early 'thirties such diminution is only possible in good fodder years, as the experience of the dry year of 1935 amply proved, when domestic meat supplies ran short. Thus to increase the numbers of livestock for breeding and the quantities of animal products by increasing the fodder grown on the farm has been a main objective of the policy of national production. This was a keynote of Nazi policy in the last decade.

Nevertheless during the quinquennium 1935–40 there was no diminution in the imports of foodstuffs and feedstuffs, but rather an increase —from 7,200 million tons in 1933 to 8,600 million tons in 1937. The fight for autarchy in meat and dairy products was effected by the general increase in the production of the soil by the improvement of agricultural techniques. This trend must undoubtedly be continued in the new Western Germany.

Part V

NATION AND STATE

Deutschland, Deutschland über alles,
Über alles in der Welt,
Wenn es stets zu Schutz und Trutz brüderlich zusammenhält,
Von der Maas bis an die Memel,
Von der Etsch bis an den Belt.

Von Fallersleben (1848).

CHAPTER 13

THE POLITICO-CULTURAL GROUPS OF THE GERMAN PEOPLES

THE UNITY OF THE GERMAN LANDS

THE CONCEPT of an area in the heart of Europe occupied and united by the language, culture, and politico-historical development of the German-speaking peoples, has permeated German thought for many years. It received special attention during the early decades of the nineteenth century, at a time when Metternich referred to Deutschland as nothing more than "a mere geographic expression". It was involved in the growth of nationalism in the nineteenth century, and then again by scholars during the past fifty years. Especially since 1918, and more so during the Nazi period, this wide area, irrespective of political frontiers, was often described as Deutschland. The German protagonists claimed that they used the term purely as an expression of the cultural unity of the German-speaking peoples, but, when this became associated with dreams of territorial expansion under the Nazis, the whole concept became throughly distasteful to such as the Swiss, Dutch and Flemings, who came within its ban. Viewed from a scientific point of view, there is here a baffling problem of geographic synthesis. French geographers write with eloquent persuasion of the personality of France as a man-made, not a nature-given, unit. How can we answer this question in the case of Deutschland? Deutschland may well be *ein Stück Boden und ein Stück Menscheit*, but what does this mean in fact?

The name *Deutschland*, which literally means *German land*, was used in a political sense after 1815 as the alternative name of the German Confederation (*Deutsches Bund*), and in 1871 it became the official alternative title of the *Deutsches Reich*. But it has been used for centuries to designate the wider area of the German-speaking peoples, and of the alien peoples who, in the past, have been greatly influenced by German culture. It was used for centuries in this cultural sense only, and particularly during the Humanist Movement in the sixteenth century.

After the Treaty of Westphalia (1648), with the recognition of the independence of the nation-states of the United Provinces and Switzerland, the advance of France to the Rhine, and the political disintegration of the German peoples, the cultural concept of Deutschland gradually faded into oblivion. At the opening of the nineteenth century, when the German Confederation was established, the idea of the cultural

unity of the German peoples was dead among the common people. It was revived by the intellectual *élite* as a part of the Romantic Movement, comparable in some ways with the Humanist Movement of the Renaissance period. This later movement stressed the new idea of nationality. Contemporary German philosophers maintained that the keystone of national unity was language. According to Fichte, the leader of this movement, language "gives unity to an inseparable whole, and is more important in the existence of a State than natural frontiers".[1] In 1810 the term *Deutsche Volkstum* appears for the first time, and *Volk* was regarded as the equivalent of nationality. It was not until later, and even then among only a few German scholars, that it was realized that nationality is moulded by conditions far more intangible than speech. In 1834, with the advance of cartography, there appeared the first map of the distribution of the Germanic languages; it bears the significant title *Nationalitätskarte Deutschlands*. At the same time, scholars were beginning to regard the wider Deutschland as a physico-geographical entity, though let it be remembered—and this applies to linguistic as well as to other distributions—that map-making was not yet accurate, nor were the physical sciences far advanced, and such ideas were necessarily crudely descriptive. In the early decades of the century, Carl Ritter and his followers regarded Deutschland as a natural entity, composed of the Alps, *Mittelgebirge*, and the Northern Lowlands. Many writers have since referred to these as *Ober-*, *Mittel-* and *Niederdeutschland*. This idea of the threefold composition of the German lands, in its physical build, no less than in languages, culture and historical development, found general acceptance in the early nineteenth century. The idea, for example, was elaborated by Wilhelm Riehl (1854), who wrote of the *Völker und Ländertrias*—of a "socially centralized north", which was dominated by Prussia; a decentralized or more fragmented *Mitteldeutschland*, which included Saxony, Thuringia, Hesse, Baden, Württemberg, the Bavarian Palatinate, and Northern Franconia; and a "centralized south", to which belonged most of Bavaria and the German-speaking lands of Austria.[2]

Since 1871, the advancement of science and of cartography has made possible more exact analysis and cartographical representation of the geographical areas embraced by these various aspects of Deutschland. In 1871, the term Deutschland was applied to the Reich as its official title, but, in deference to the susceptibilities of neighbouring peoples and governments beyond the Reich, it was usually avoided for the

[1] Emil Meynen, *Deutschland und Das Deutsche Reich*, 1935, p. 40. Meynen's work is not politically tendentious. It is a scholarly effort to cope with this whole question. What else could one expect of a disciple of Penck, to whom the book is dedicated? The work, however, is, naïvely nationalistic.

[2] Quoted by Meynen, *op. cit.*, p. 205.

wider area. Thus a new term had to be found, and *Mitteleuropa* was used as a substitute. This latter title has been adhered to by most German geographers to this day, although, to distinguish it from the larger entity of which it forms a part, the name *Germanische Mitteleuropa* or German Central Europe is often used. Nevertheless, the similarity of title has given rise to much confusion, and some German geographers have even refused to accept the name *Mitteleuropa* for the wider area of Central Europe.

After the First World War the Pan-German idea again began to receive special attention. The term Deutschland began to be used by scholars and propagandists alike, and its meaning from various points of view was more fully elaborated. It is not surprising that Nazi politics brought forth much writing, blatantly opportunist, on the subject the geographical unity of Deutschland. We may, however, refer to the works of two outstanding geographers for as clear a statement as is possible on varied aspects of the concept of Deutschland.

Norbert Krebs, the pupil and successor of Albrecht Penck to the Chair of Geography in the University of Berlin, gave special attention to this question in the 'thirties. But we find again a change in terms, for the magnificent German atlas, prepared under the direction of Krebs, bears the title *Das Deutsche Lebensraum in Mitteleuropa.* The *Deutsche Lebensraum* is here regarded as the compact area of German settlement and of the German-speaking peoples, together with the areas occupied by alien peoples, who in the past have been strongly associated with German culture (Fig. 1). This conception is exactly in line with the views expressed by his predecessors. In the introduction to the atlas, Krebs writes as follows:

" *Volk* and *Lebensraum* stand in the closest inter-relationship. The land area (*Raum*) carries traits imprinted on it by the labour of an active people through centuries; but it has also influenced the men who inhabit it. No *Volk* can be truly understood without a knowledge of its *Lebensraum.* This is true for our German *Volk* as for every other. But the attempt to clarify the relations between *Volk* and *Raum* would not succeed if we limited our view to one of the States in which the German people live (namely the *Reich*). The area which the Germans have transformed through their assiduous labour, and from which they have created a humanized landscape (*Kulturlandschaft*) with a character of its own, is more extensive than the Reich. More than in the case of other peoples, it is necessary for ours to embrace the whole German Folk Area (*Volksgebiet*) and to see how it is embedded amongst other peoples and lands.

" We have deliberately tried to portray [*in the atlas*] the area occupied by the German-speaking peoples within the framework of its neighbouring lands. The maps embrace nineteen modern States, fifteen of which are included in some measure in the compact German Folk Area (*Volksboden*). They extend from Flanders to Memelland, from Schleswig to the southern Tyrol. They

show the historical Deutschland in contact with three seas and with a wide geographical connection with France and Poland. The western and eastern borders exhibit varied and conflicting relationships. The main emphasis is given to the centre. In this way we embrace an area which is unified by a common culture and language."

There is yet another aspect to the question. It has often been claimed by German geographers that there is a "natural entity" in the heart of Europe which frames the German-speaking peoples, though its limits do not always coincide with the latter. Thus Albrecht Penck wrote:

" Deutschland is for us a natural entity (*eine natürliche Einheit*) and not simply a political conception; such a one is the *Deutsches Reich.* This latter is the State with its frontiers, which unfortunately do not embrace all those who would belong to it. *Deutschland*, however, is also not the land in which German only is spoken. It stretches from early times beyond the limits of the German speech (*Sprachboden*), and does not coincide with the latter. What *Deutschland* has meant for centuries is a definite part of the earth's surface, with characteristic features, and a distinct form (*Gestalt*)."[1]

This view of Penck is re-echoed by his pupil, Krebs, who writes:

"*Deutschland* is for us neither a pure physical, nor a pure ethnic (*völkischer*) conception; and it certainly does not coincide with the changing area on the political map. It is, as the name indicates, the land which belongs to the Germans on the basis of all the physical and cultural peculiarities of the area. Deutschland is greater and more stable than the *Deutsche Reich*; but also its area is not unalterable for all times."

In defining this so-called "natural unit", Penck refers to the maximum extent of the first Reich at the end of the Middle Ages—the historical Deutschland. It was characterized by the threefold combination, the *Dreiklang*, of Alps, Uplands, and Lowland, and where one of these dies out to east or west, there this natural unit comes to an end. To the north, it merges into the peninsula of Denmark and to the south, on the southern slopes of the Alps, it is demarcated by the approach to Mediterranean climatic conditions. This is a vague concept, though it has often been repeated from Ritter onwards, the area ranging in extreme cases from the Pyrenees to the Pripet marshes. The fact is that the idea of such a "natural unit" *per se* only acquires meaning when defined in terms of the human traits of the State, culture, and speech. And a natural unit cannot be defined in terms of a cultural unit.

It will be clear that there is great variety in the potency and the geographical extent of the various criteria upon which these conceptions are based. Moreover, all the human criteria noted above are frankly historical. The lack of geographical coincidence between the areas of German speech, German nationality, and the Reich (first, second, and

[1] Penck, 1925. See quotation in Meynen, *op. cit.*, p. 208.

third!) in the past as well as in the present, the fluctuation of each of these areas in history, and the flimsiness of some of the arguments upon which these various areas are defined, make the definition of a composite Deutschland as a meaningful politico-cultural entity an impossibility. This theme fully bears out the view of George Kimble that to "spend our days 'regionalizing' is to chase a phantom, and to be kept continually out of breath for our pains".[1] The phantom in this case is Deutschland.

The geographic concept of the German realm varies widely according to the criteria and according to the period to which they apply. The *Reichsboden* refers primarily to the extent of the first Reich and to the frontiers that grew out of it. Its fluctuating boundaries—as well as the permanence of certain of them—are discussed below. The *Volksboden*, in effect, includes the lands occupied by the German-speaking peoples who use High German as their medium of contact with the outside world. The *Kulturboden* is a still vaguer concept, since it refers to the imprint of the distinctively German ethnic traits on the changing aspect of the landscape or habitat in which they live—field, house, village, and town. German writers have often referred to the distinct traits of the German "way of life", by which they mean cleanliness and homeliness of the peasantry, a highly developed sense of municipal life that dates from the Middle Ages, a keen sense for the "organization of area", whether it be the running of a farm, the protection of Nature, or the organization of the State. In seeking yardsticks, we are brought down by them to consider the absence of billboards, the presence of flower-pots, and the frequency of water-closets as evidences of this folk character. This is a *reductio ad absurdum*. While the German lands stand out in these respects from the lands of east-central Europe, there is no meaningful difference in material achievements between Germans and the other west European peoples.

The concept of this *Kulturboden*, or the area affected by German *Kultur*, was first outlined by Albrecht Penck and has been elaborated by Emil Meynen. Maps appear in many pre-Nazi texts and atlases. The criteria on which it is based are vague, but evidently mainly historical. The *Kulturboden* falls into four parts. First, there is the German ethnic area (*Volksboden*), as shown on Fig. 1, p. 4. This includes the fragmented areas in central Europe that have now been virtually eliminated. Second, there are the small non-German groups like the Wends, Kassubes, Masurians, Ladins, and Romansch, who accepted High German speech as their cultural medium. Third, there are the peripheral areas, whose peoples have a Germanic speech but who have acquired distinct ethnic and cultural character through centuries of

[1] George H. T. Kimble, "The Inadequacy of the Regional Concept", in *London Essays in Geography*, ed. by W. Stamp and Wooldridge, 1951.

national independence. Such are the Dutch, the Flemings of north Belgium, and the German Swiss. Fourth, there are the areas beyond the *Volksboden* that have non-German populations but, through centuries of contact with the German realm, have acquired many of its cultural characteristics. These lands lie mainly in east-central Europe. They include the Slav lands of Posen, Upper Silesia, Bohemia and Moravia, patches in Slovakia, western Hungary east to the river Raab, and Slovenia in northwest Yugoslavia. To the west, two areas are apparently included—French-speaking Lorraine and the French-speaking area of southern Switzerland. This is a moderate statement of the case. The Sydow-Wagner *Methodischer Schul-Atlas*, an excellent standard German school atlas, includes Esthonia and Latvia to the east. It also shows the area of the Austro-Hungarian Empire, which "for a century was under German domination"; the area in which, in the past, German was the language of commerce (east to a line from Leningrad to Odessa); and the eastern limit of German medieval town law, that reaches from Narva south to the Danube.

Many of these concepts and statements are sound as items in an ethnic and cultural pattern. This is part of the method and purpose of cultural anthropology and we have to recognize the valuable work that many scholars have done in this field. The confusion arises from the association of these cultural phenomena with political aspirations. It arises also from the obsession of German thinkers and statesmen for over a hundred years with the idea of the essential cultural unity of the German peoples and the need for effecting some kind of political unity among them all. It fails to recognize the separate political attitudes of many of the groups within the whole, both on its periphery and within the third Reich itself.

We have to recognize the fact, however, that the geographic pattern of distributions and relations of the German peoples is one of great complexity, the more so since the sectors of the modern Germany have retained their political independence within the framework of a federal Reich, until they were reduced to the status of provinces under the Hitler regime. With the defeat of Germany, and the rolling back of its eastern frontiers of settlement, and the liquidation of the German islands throughout east-central Europe, this whole theme may strike one as of historic importance only. The German realm, however vague its limits, expresses a reality in the historic development of Europe and in the memories of its peoples, for good and evil, and it would be naïve indeed to assume, through our own ethnocentrism, that these ideas, in their best manifestations—like the German memories of overseas opportunities—are dead. Such realities and aspirations must somehow be directed into new channels and new solutions. And it is extremely

doubtful in the long run whether the rolling back of the frontiers of German settlement to the Oder and the Neisse is one of these.

ETHNIC CHARACTER OF THE GERMAN PEOPLES: LANGUAGE

The Germanic or Teutonic peoples emerged as a distinct ethnic group with a distinct language in the southern portion of the Baltic area in the late Iron Age. Their racial type was a variant of the pure Nordic; their language a branch of the Indo-European tongues, the Teutonic languages, which have given birth to the English, Frisian and German languages. The west Germanic tribes—the Franks, Alemanni, Saxons, Frisians, Thuringians and Bavarians—all belonged to this Nordic type, and spoke variants of the same tongue. From an area of dispersion which seems to have been in the lower Elbe area, these tribes moved slowly westwards and intermixed with the native populations.

The languages of the Germanic tribes seem to have been differentiated at an early date into what became in the Middle Ages Low German and High German. The former was the result of sound-shifts in German speech which appeared as early as the sixth century, due it would seem to contact with peoples of Celtic and Roman speech in the Rhinelands. The Alemanni and the Franks had long contact with the Romanized lands on the Rhineland, and there is evidence that at an early date they lost something of their Nordic character; both absorbed much of Roman-Christian culture, and became the carriers of that culture to the pagan Germanic tribes to the east of them. It would seem to be out of such associations that these early linguistic changes took place between A.D. 500 and 700. These changes affected first the tongue of the Alemanni and the Bavarians, but the speech of the Saxon tribes to the north was not affected. Thus there developed the main contrast in German speech between High German and Low German, with an intermediate form known as Middle German which received some of the linguistic changes of High German and forms geographically a belt intermediate between High and Low German. These dialects assumed definite form in the early Middle Ages, and later spread considerably both in west Germany and eastwards into the colonized lands.

The distribution of the German language into dialects is shown in Fig. 51. Frisian speech is preserved in the province of Friesland in northern Holland, in the West Frisian islands and the west coast of Schleswig-Holstein, whither it has retreated with the advance of Low German from the traditional habitat of the Frisians on the mainland. Low German is spoken throughout the lowlands of north Germany and in east Holland from the shores of the Zuider Zee to the lower Elbe, and in Schleswig-Holstein and Mecklenburg; while east of this limit it

A–A is the eastern limit of German settlement about 900 A.D.

Niederdeutsch
= Low German

Mitteldeutsch
= Middle German

Oberdeutsch
= High German

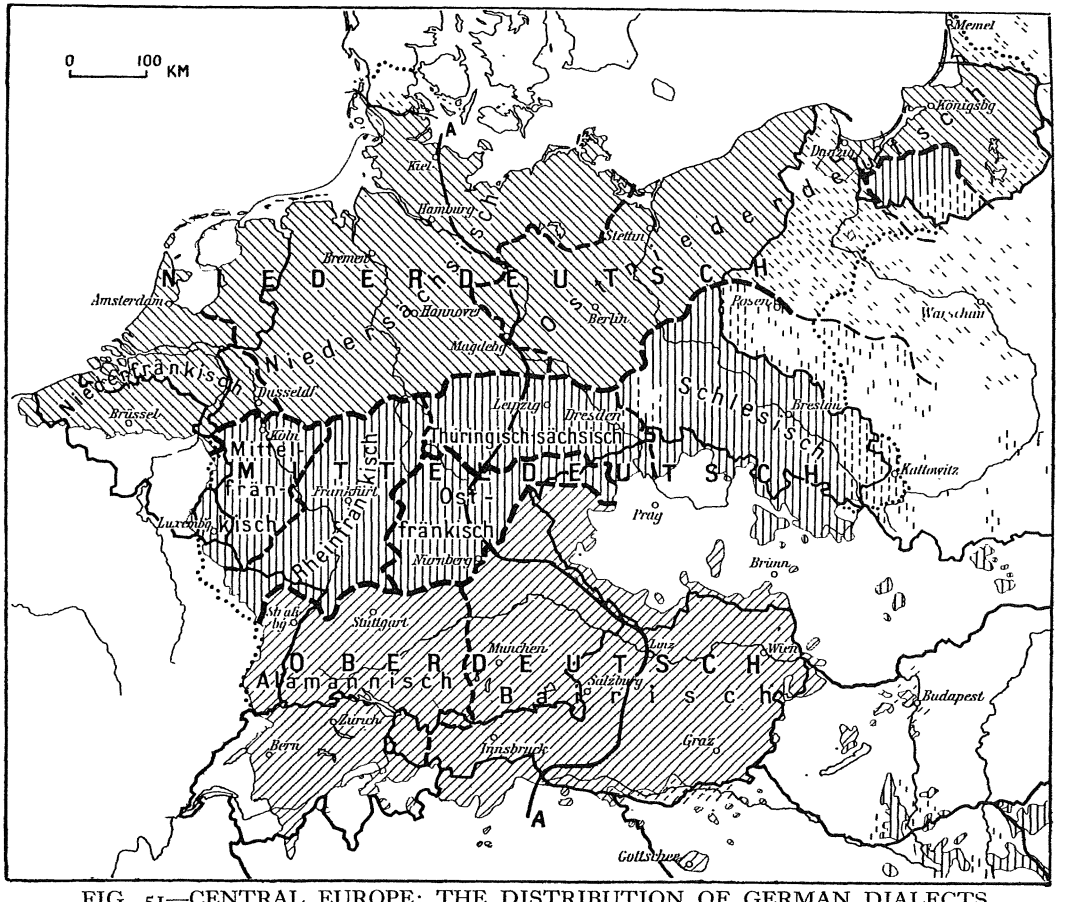


FIG. 51—CENTRAL EUROPE: THE DISTRIBUTION OF GERMAN DIALECTS (pre-war) (*from E. Meynern*) (scale, 1 : 10 m.)

was extended, with modifications, eastwards into the colonized lands of Pomerania and East Prussia. Its southern boundary does not correspond with the junction of lowlands and uplands, as is often stated, but includes the northern zone of uplands from the Sauerland to the Harz. Just as Frisian has retreated before Low German, so the latter has in turn been gradually displaced northwards by High German. This has occurred mainly on the great routeways of the Rhine, where it has spread northwards, even to affect the speech of Cologne, and the Elbe-Saale, where it has spread north almost as far as Magdeburg. The language of the Netherlands has developed from a distinct branch of the Low Frankish dialect. But through the development of its own national language and culture, the boundary between Holland and Germany, which was not fixed until the sixteenth century, has developed into an effective linguistic and cultural divide, although the peoples on either side of it speak dialects which are closely related.

Middle German dialects are spoken from the western limits of German speech south of the Low German area, and south to a line from Karlsruhe to the northeastern corner of the Czech-speaking lands. The wooded Thuringian uplands divide the Frankish dialects to the west from the Thuringian and Silesian dialects to the east. Each of these dialects is spoken in the corresponding areas of German speech in the Bohemian uplands. The Frankish dialects in the west fall into three groups, those of the Rhineland Massif north of Bonn; those of Hesse and the Palatinate; and East Frankish, closely akin to High German, in the upper Main basin.

High German is spoken throughout the south, and includes three groups, the Alemannic, Bavarian and Austrian dialects, the last being derived from the Bavarian speech of its medieval colonizers. It will be noted that the Bavarian speech extends to the Lech and the Enns rivers.

The cultural individuality of a people is far more clearly defined by its literary language than by its vernacular tongue. Distinct national literary languages developed mainly after the innovation of printing, in the sixteenth century. The national tongue then began to displace Latin as the language of court, cleric and scholar, and as the vehicle of commercial and literary intercourse. It was then that the written languages of the great nation groups of Europe took definite form. In the nineteenth century, with the development of nationalism among the smaller peoples, vernaculars have been raised to literary status. But usually small and primitive groups do not have their own literary languages, and culturally, as well as economically and politically, are dependent upon a larger culture group or state, the language of which they may accept voluntarily or by compulsion.

High German began to come into general use as the common literary language of the German peoples after about 1500, and it was gradually

superposed on the dialects as the *lingua franca* of speech and print. For the differences between the dialects became ever more marked during the Middle Ages and after, so that today it is often impossible for a native of the north to understand one from the south. By the fourteenth century German was displacing Latin in public documents and gradually the Imperial Chancery in Prague evolved a German language for its documents that consisted of a blend of Bavarian-Austrian and Upper Saxon, that was copied by the other German State Chanceries. It was this language that was carefully standardized and popularized by Luther in his translation of the Bible. The language spread more quickly in the Protestant states of the north than in the Catholic states of the south, and it was not until the late eighteenth century that it was generally accepted as the common language of the German peoples.

It is on the basis of High German as the language of culture and commerce that German scholars have defined the extent of the German *Sprachboden*, and this they assume to be the same as the *Volksboden*. This area of High German is considerably different from the distribution of dialects. High German is used by the small Wendish group in Lusatia as well as the Frisians of northern Germany and western Schleswig. The latter are included in the area of German culture, just as their western counterparts in Holland, are included in which country they are situated and with which they are nationally affiliated. Similarly the small Romansch and Latin-speaking groups in Switzerland and Austria use High German, and so are included in the German speech area. On the other hand, the Dutch and Flemings, though speaking languages which are closely akin to Low German, have developed their own literary languages, and Holland has enjoyed three centuries of national independence, while the Flemings form a part of Belgium where bilingualism is recognized. Similar independent national folk areas surrounding the German-speaking peoples are the French, Italian, Slovene, Czech, Polish and Danish lands.

RACIAL CHARACTERS

The question of ethnic or racial characters and types, and their distribution, is so complex that we shall quote from two recent standard authorities on the subject.

"The ethnic character of the peoples of Germany is due to the age-long intermixture of Nordic and Alpine stocks. In northwestern Germany, Schleswig-Holstein, Hanover and Westphalia, the physical characters of the population approximate to those of Scandinavia and especially resemble the mixed type encountered in Denmark. East of the Elbe, Nordic features become less common and less pronounced and skulls become broader. In the south, Baden, Württemberg and Bavaria carry

a definitely round-headed population, essentially Eurasiatic (*Alpine*) in physique. A line drawn from Breslau in the east through Dresden and the city of Hanover to Cologne, so as to divide the uplands from the plains, comes close to dividing the two main population groups, the especially Eurasiatic (*Alpine*) and the typically Nordic."[1] To the west, this line may be continued to the western edge of the Flanders lowland, for the Flemings are dominantly Nordic, and the Walloons south of this line are Alpine.

The Nordic character of the original Germanic tribes has been greatly modified, both in the Northern Lowlands, where these traits are still dominant, and in the Southern Uplands, where we find today a dominantly broad-headed population with, however, fairly tall stature and light pigmentation (passing to brunette in the south) due to Nordic influence. But the broad contrast noted above between north and south should not be taken too literally; for in the Rhinelands, islands of Nordic long-headedness and stature seem to have been better preserved. Thus racial types have greatly altered since the original settlement, and "the temporary ascendancy of North German Nordics in the west of Germany during the centuries which followed the settlement of the West Germanic tribes was not of long duration".[2]

It would seem, however, that there is a certain correspondence between the distribution of racial traits of the living population and of the tribal areas in which the types have evolved through centuries. The Nordic type is found in north Germany mainly among the people of Frisian and Low German speech—the area roughly corresponding to the area of Saxon and Frisian tribal settlement. It is, however, a variant of the pure Nordic that occurs in Scandinavia, the Baltic states, and England and Scotland. True Nordic long-heads are found in Hesse, "old Frankish country", as Coon rightly describes it; and in Baden and Switzerland, in old Alemannic territory. The Bavarian is a typical Alpine. In southeastern Germany, from Saxony to Silesia, the head form is broad, but pigmentation is light, owing to intermixture between the immigrant Iron Age Nordics and Alpine native stock. East of the Oder appear definitely Slav types, "a broad-faced, snub-nosed, brachycephalic strain", as described by Coon. In the Baltic coast provinces this Slav type has intermixed with Nordics to form the East Baltic type, which is well represented by the Junker class, and notably by Hindenburg. In the Tyrol, the Dinaric type, which is characteristic of the mountainous land eastwards from Switzerland, has been preserved intact since the Bronze Age: the distinctive feature of this type is that it is tall and broad-headed with a flattened occiput. Definitely Nordic types prevail in

[1] Huxley, Haddon and Carr Saunders, *We Europeans*, Pelican Book, 1939, p. 188.
[2] Coon, *The Races of Europe*, p. 538.

central Austria, probably as descendants from the Iron Age Nordics, who developed the Halstatt culture in this region.

RELIGION

The great religious schism which occurred during the Reformation period introduced a very potent factor of cultural differentiation in the lands north of the Alps. The distribution of Roman Catholicism and Protestantism which then took definite shape has changed little since.

The first bishoprics were established during the Roman period on the site of Roman *castra* in the Rhinelands. (Fig. 52, p. 318). During the eighth to tenth centuries the Frankish and Saxon kings established new bishoprics to spread Christianity. These were located in the Main basin, which, culturally, is virtually an extension of the Rhinelands; in the Loess Belt; as outposts against the Slavs on the Elbe-Saale frontier; and in the east Alpine lands. The location of the bishops' seats was closely adjusted to the distribution of the population at that time (i.e. the forest free lands), and to natural routeways; while their diocesan areas were similarly adjusted to those of the dukedoms. The Catholic faith spread eastwards to Poland via Cracow, and Bohemia via Taus, and Scandinavia via Lund, about A.D. 1000.

In the sixteenth century, long and bloody conflicts were fought in the name of religion, to which were added nationalist aspirations, once the torch of protest had been set alight by Luther. In Bohemia, the Hussite movement in the fourteenth century was an early protest against the Catholic Church, and this country would undoubtedly have become Protestant had it not been for the ruthless Counter-Reformation of the Habsburgs, which left it as a Catholic land. The Low Countries were a scene of strife at a later date. Here, national independence was achieved. The United Provinces north of the Rhine, together with northern Brabant immediately to the south, went over to Calvinism. The Flemings of Flanders did not join the Dutch, with whom they were far more closely tied linguistically and culturally than with the Walloons. "It was not geography, nor a difference in culture or in language, but an accident of religion, consolidated by persecution, that caused the separation of the Flemish in Belgium from the Netherlands."[1] The Dutch succeeded where the Czechs failed, and this was undoubtedly due to their skilful use of the natural defences of sea and marsh. Switzerland was already a free and independent country and contributed vastly to the new thought. But Switzerland, unlike the other two areas, from the beginning tolerated both faiths.

The complicated politico-cultural pattern of the German lands is

[1] Coon, *The Races of Europe*, p. 525.

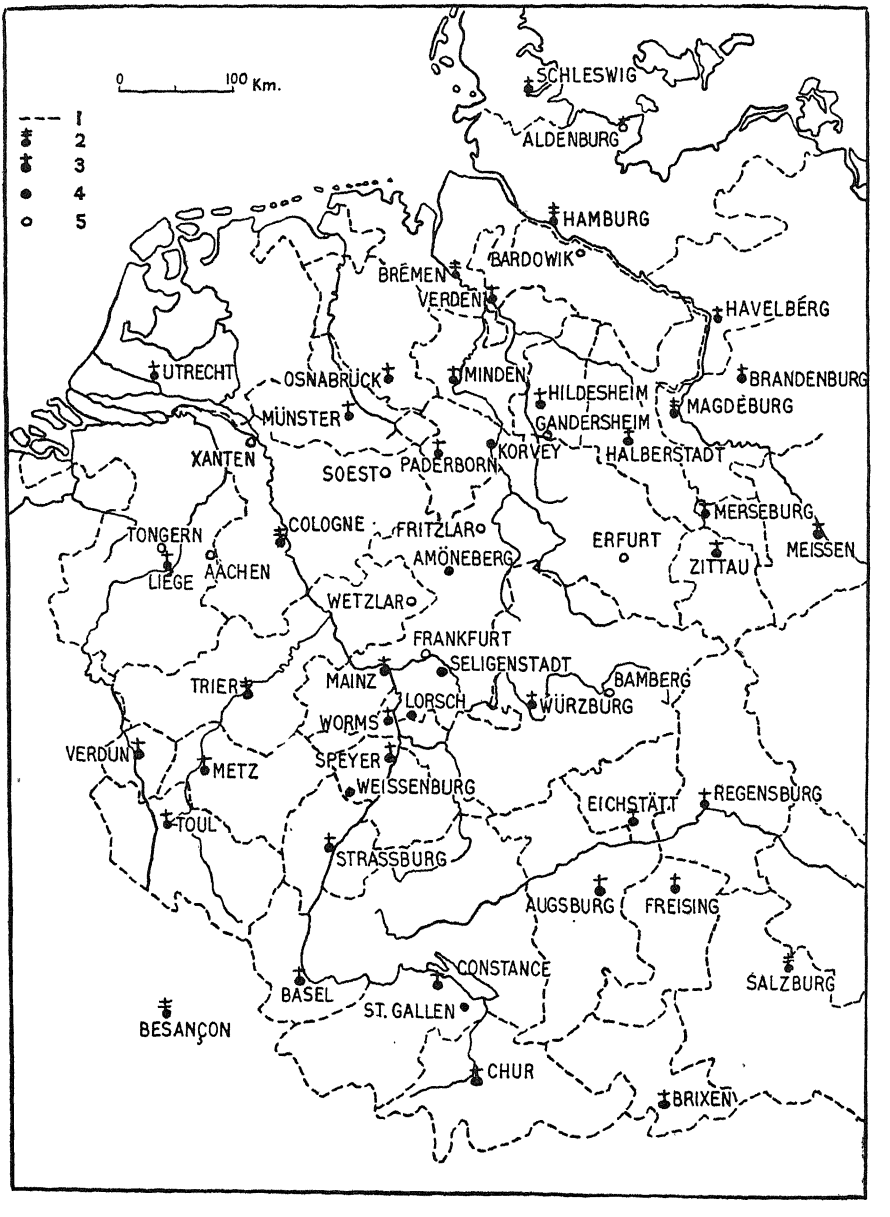


FIG. 52—GERMANY: MEDIEVAL BISHOPRICS ABOUT 1000 A.D.
(*from Aubin and Niessen*) (scale, 1 : 6 m.)

1. Archbishoprics and bishoprics
2. Archbishops' sees
3. Bishops' sees
4. Abbeys
5. Cities

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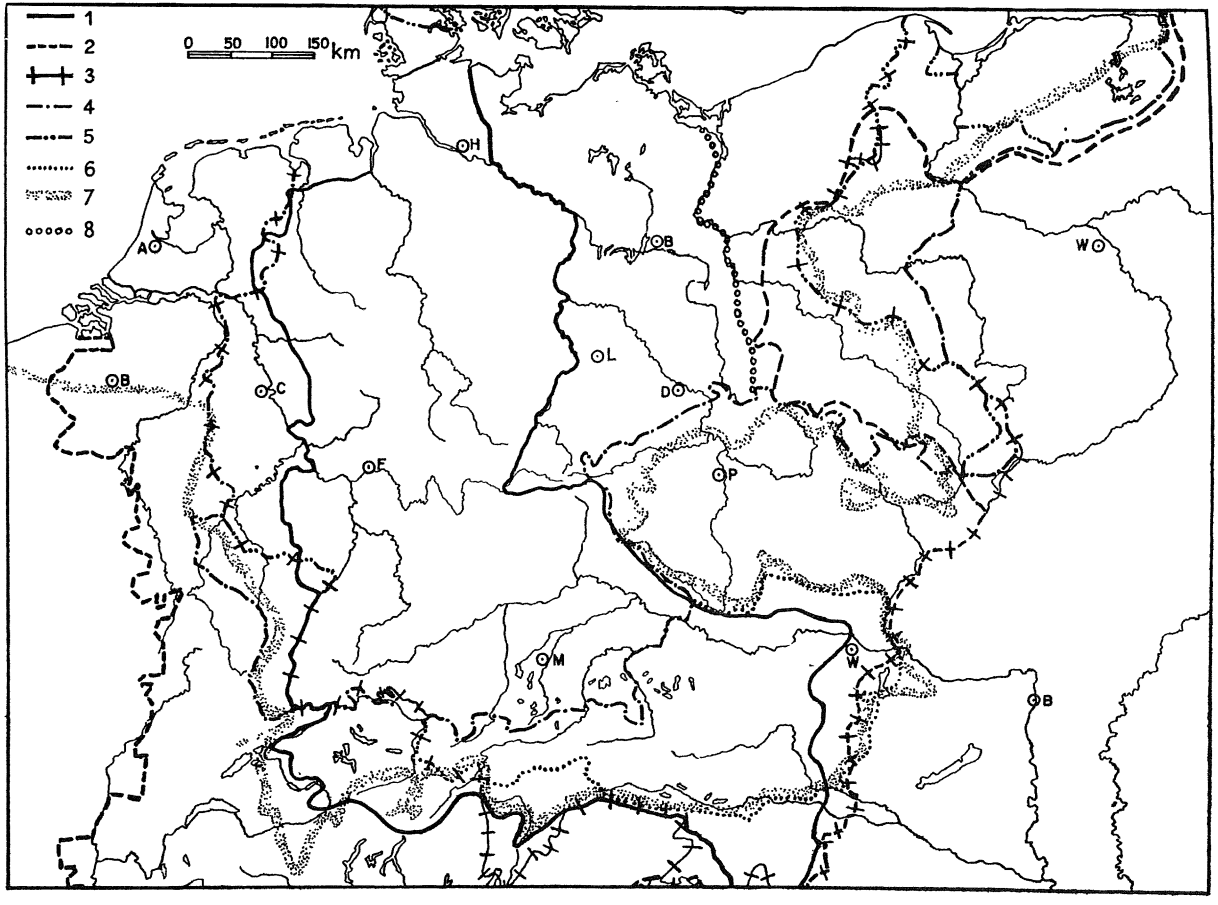
reflected in the distribution of religion. The peoples of the Northern Lowlands turned almost *en masse* to Protestantism. To it also adhered the whole of the lands of the middle Elbe basin and the land of the Hessian Corridor. From the confusion of states in the Main and Neckar lands there emerged a bewildering distribution of Catholicism and Protestantism. The states under secular rule, which stretched in a continuous belt in the upper Main and Neckar basins, from Württemberg to the Upper Palatinate, became Protestant. Thus, the zone of Protestantism extended southwards as a narrowing wedge with its apex in Switzerland, limited to the east by the Danube valley and Bohemia, and to the west by the Rhinelands. In Bavaria, Austria and Bohemia, Catholicism remained dominant under the Habsburgs. To the west the majority of the French peoples also remained true to the Catholic faith. In the Rhinelands the Catholic bishoprics maintained their hold, except in the Rhenish Palatinate. Of particular significance are two areas which break into the main area of Protestantism, and which are focused upon old-established and strong bishoprics like those of the Romanized lands. Westphalia (Münster, Osnabrück, Paderborn) remained Catholic and formed a large enclave between Lower Saxony to the east and Holland to the west. In the Main valley, the dioceses of Würzburg and Bamberg, like Bavaria, to which they were politically attached in 1815, also remained islands of Catholicism.

THE REICHSBODEN

The Reichsboden is shown on Fig. 53. The "historical Deutschland" appears first as the Holy Roman Empire (the first Reich), that persisted for a thousand years; then it continued in the nineteenth century as the German Confederation; later, in 1871, as the second Reich; then, in 1918, as the Republic of Germany; and in 1933 as the third Reich. This assembly of German peoples is the pivot around which European movements take place. Throughout the Middle Ages, the Holy Roman Empire, though lacking effective political unity after 1200, and divided into a number of parts different in their economies, cultures, and national aspirations, formed a group of states that were thrown together through geographical propinquity in both peace and war, and

Fig. 52. These bishoprics' divisions were established under the Merovingian and Carolingian Emperors. Whereas the archbishopric of Trier stretched down the Moselle valley it was only able to include a small portion beyond the Rhine valley for here, east of the Rhine, the work of St. Boniface had brought this area under the jurisdiction of the archbishop of Mainz. To the latter were added the bishoprics of Paderborn, Halberstadt, Hildesheim and Verden after the conquest and conversion of the Saxons. The sphere of influence of the bishop of Cologne was similarly extended eastwards to beyond the Rhine after the conversion of the Frisians and Saxons. The boundaries are based on exact data for the later middle ages, but these may be referred back to this earlier period.

united through the dominance of German speech and culture. At the end of the Middle Ages the Reich was bordered by France along the Meuse and the Argonne uplands, although in the next centuries France expanded eastwards to the Rhine and the Alps. To the east, the Reich bordered on Poland, which at the height of its power in the eighteenth century stretched from the Baltic to the Carpathians, though in 1815 it contracted to the Vistula core and the western territories of West Prussia and Posen fell to Prussia. To the southeast lay a great permanent politico-geographical unit, framed by the Carpathians and the Save river, namely, Hungary. The Turks reached to the doors of Vienna, but Hungary rose again in the seventeenth century, and the boundary from the Beskides Mountains to the head of the Adriatic is one of the old-established and meaningful human frontiers in Europe, just as was that of the nineteenth-century frontier against Congress Poland. To the north lay the group of Scandinavian states, closely allied in peace and war, with the centres of population and political gravity on the shores of the southern Baltic and the Kattegat and its key-point in the exits from the Baltic. The Hanseatic League, Denmark, and Sweden have each played the same role in turn of attempting to turn the Baltic into a closed sea. It came closest to this in the seventeenth century when Sweden, long holding Finland as a political and cultural appendage, added most of the Baltic provinces south of the Gulf of Finland in 1648, and annexed Bremen, Verden, and Stettin, and thus controlled the mouth of the chief German rivers. The struggle between Denmark and Sweden for the control of the Sound resulted in the victory of Denmark and then, after 1815, Norway, breaking away from Denmark, was under the same crown as Sweden until 1905 when it became independent. The Eider river at the neck of the Jutland peninsula is the historical frontier between Denmark and the German realm. South of the Alps, the German Emperors early interfered in Italian affairs, but there was never any long-term annexation of these lands to the German realm, with the exception of the southern Tyrol beyond the Brenner. The German Reich had a footing in Carniola at the northern end of the Adriatic where now lie Trieste and Fiume. Switzerland, the dukedom of Milan, and the Republic of Venice framed the Reich to the south. The kingdom of Burgundy early disintegrated. The Franche Comté, that commanded the routeways from the Belfort gap into France and had its ancient capital in Besançon, remained nominally a part of the Reich until 1678, when it finally passed to France. Savoy in the French Alps south of lake Geneva remained an independent political unit until 1860. This was the broad framework of the Reich at the end of the Middle Ages out of which the modern politico-geographic pattern of continental Europe has evolved.



1. Eastern frontier of the Reich in 843
2. Hohenstaufen Reich in 1200
3. Confederation in 1915
4. Second Reich in 1871
5. Weimar Republic in 1919
6. Third Reich in 1938
7. German-speaking area (1938)
8. Eastern boundary of potsdam Germany

FIG. 53—CENTRAL EUROPE: THE BOUNDARIES OF THE REICH (scale, 1 : 12 m.)

The Reich, however, was a loose agglomeration of states and by 1648 two of these, the United Provinces and Switzerland, achieved complete independence. Moreover, the expansion of France to the Rhine was marked by the final annexation of both Alsace and Lorraine in the eighteenth century. To the south, however, the frontier fluctuated very little over a thousand years. It lay south of the Brenner to enclose the southern Tyrol and ran thence along the Carnic uplands to Trieste. To the east also the frontier has been remarkably constant. The first line of defence of the *limes danicus* on the Eider river to the north and the *limes saxonicus* along the lower Elbe, the Saale and Naab rivers, were the first frontier against the Slavs, erected in the tenth century. By the end of the Middle Ages this frontier was extended eastwards and remained stable between the Baltic and the Adriatic. The eastern frontier in the Northern Lowland remained fixed until eliminated in 1918, for it was not until the end of the eighteenth century that West Prussia and Posen were annexed by Prussia. From the Moravian Gate southwards to the Adriatic the frontier was clearly defined in 1200 and persisted until 1918. Detailed fluctuations of these frontiers must be studied from Fig. 53 and from the text that follows. We may now turn to the politico-geographical units that make up the German realm.

MEDIEVAL DUKEDOMS AND MARCHES

There are distinct culture traits associated with the peoples of German speech, although many features of their medieval civilization were shared with all the peoples of western Europe. Moreover, in the Middle Ages, the Holy Roman Empire embraced all the German-speaking peoples. But in this period and after we note two general processes which have militated against both the cultural and political unity of all these peoples. First, the Reich contracted within its original limits, so as to exclude peoples of German speech; second, the whole of the original Holy Roman Empire split up into a number of cultural and political provinces, several of which developed into individual nation-states. We shall now discuss the extent and characteristics of the chief of these political groupings.

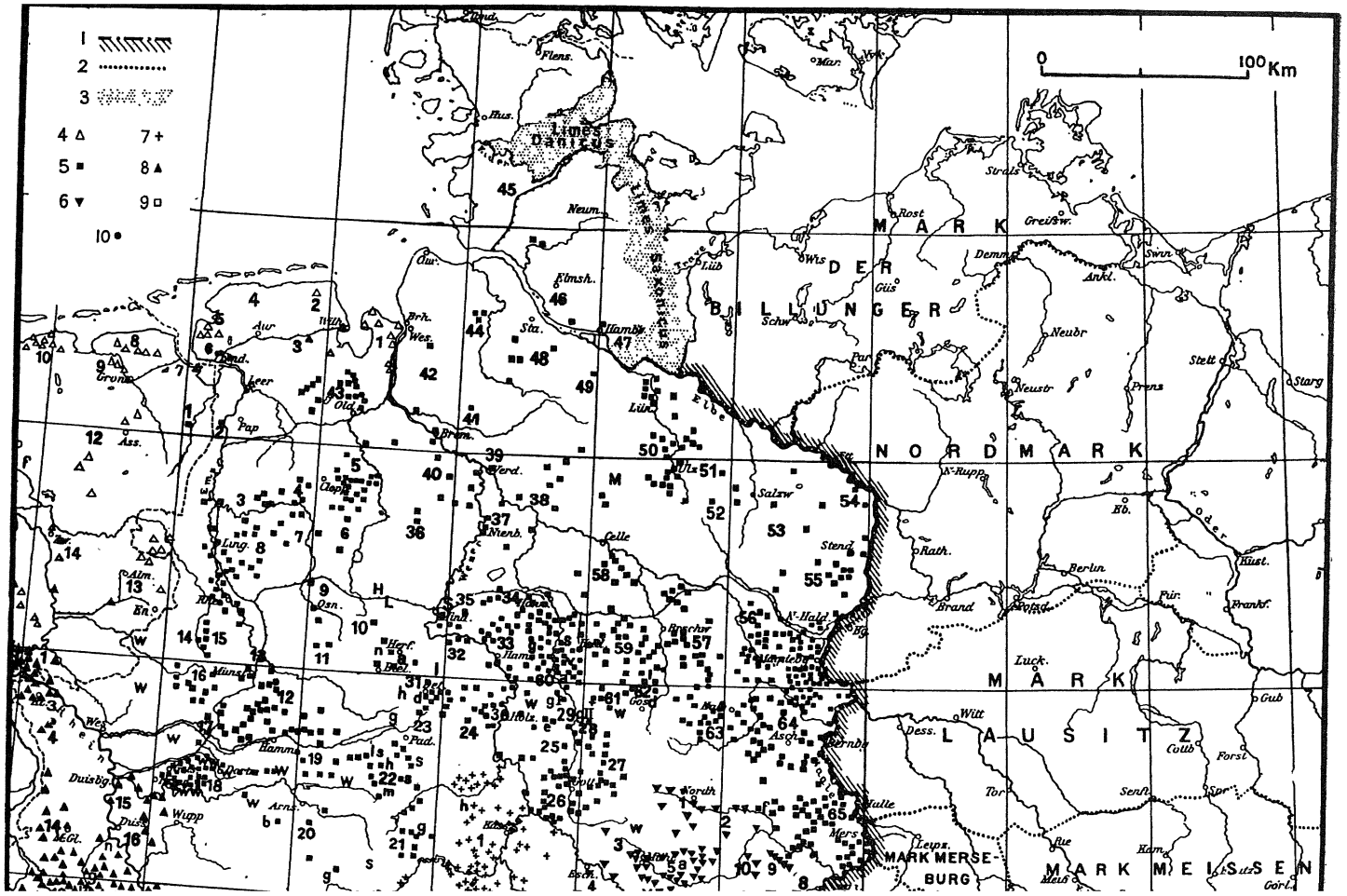
The Confederations of the German tribes settled in separate geographical areas which were divided in themselves into several detached, though interconnected seats of settlement, and each tribal confederation was separated from its neighbours by belts of forest and marsh. The conditions of this initial settlement are analogous to the settlement of the Anglo-Saxon tribes in England, the Weald, for example, serving the role as a barrier between the areas of tribal settlement on the chalk uplands to north and south of it. "Whether as barrier or bulwark, frontier march,

or area exempt from private ownership, the forest served as a framework for the embryonic societies which ushered in the political groupings of Europe."[1] Written of France and England, this statement is equally true of the west German lands.

The location of these settled areas is shown by the earliest historic records available. (Fig. 54.) The initial politico-geographical unit was the *Gau*, which word is the German form of the Latin *pagus*, and thus has the same origin as the French word *pays*. Among the Germans this was the territorial unit that had a political significance above the local groups of the village and the mark. It formed the unit of administration in the Carolingian political organization in the ninth to tenth centuries, many of which came to be known as *Grafschaften* (*comitates*), which were the equivalent of the French *comtés* or the English counties. Such territories, however, as the *Gau* and the *Grafschaft* were not always identical. Fig. 54, taken from the *Atlas des Deutschen Lebensraumes*, shows the location of places which are known to have been associated with a particular *Gau*, so that it does not claim to be an exact settlement map of that time. The majority of the names of these places are derived from records in which the place was involved in a transfer of territory to the Church, principally monasteries. But, nevertheless, the general areas shown do correspond with the most closely settled areas in the early Middle Ages (tenth and eleventh centuries). It may be further noted that these territories, which had settled cores in open lands and along main natural routeways, and separated from each other by wide forested peripheries, were often based upon the divisions that preceded the Germanic settlement after about A.D. 500. These divisions in the Rhinelands were the *civitates*, similar to those of the Roman lands of Gaul, and in inner Germany they were the *Volksgmeinschaften*, the tribal groupings whose centres of assembly were situated on the hill-top *oppida*. They were tribal districts similar to the tribal areas of Gaul with their similar centres that preceded the Roman settlement.

With the end of the Carolingian Empire, the German lands were divided into several great dukedoms, the extent of which was based upon the areas of the tribal confederations. These tribal duchies persisted until the early thirteenth century as the framework of the politico-geographical pattern of the Empire. Dukedoms (Fig. 14) and bishops' dioceses (Fig. 52) were coextensive, and in their full extent and their subdivisions they were closely related to the areas of the tribal territories. It may be added that the smaller German tribal units (the *Gaue*) and the Roman areas in the Rhinelands (*civitates*), which were focused on the scattered areas of settlement in the forest-free lands, were used as the skeleton of this early medieval framework of secular and ecclesiastical

[1] Vital de la Blache, *The Personality of France*, translated by Brentnall, 1922, p. 47.


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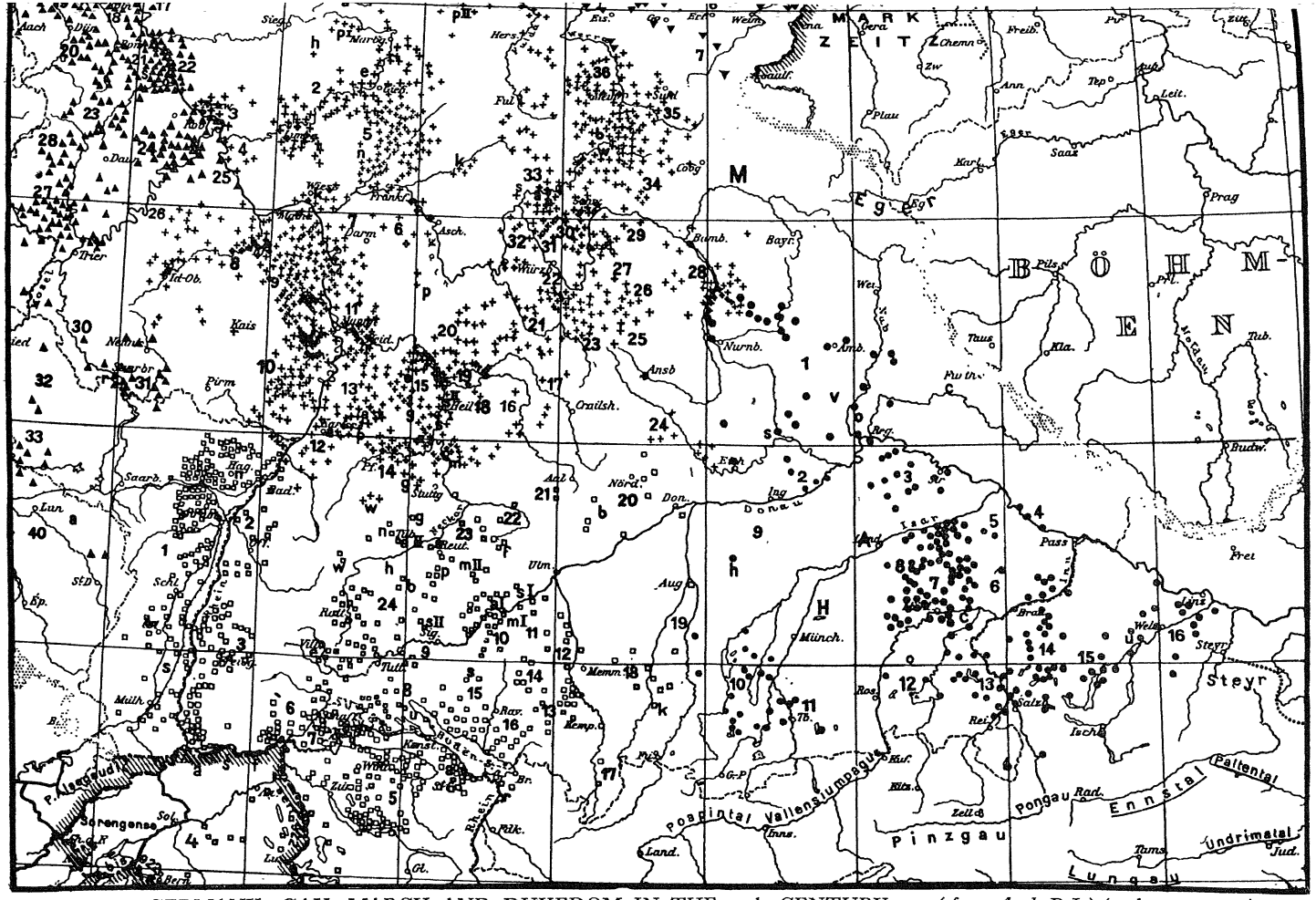


FIG. 54—GERMANY: GAU, MARCH AND DUKEDOM IN THE 10th CENTURY A.D. (*from A. d. D.L.*) (scale, 1 : 3·5 m.)

[*For key see over*

areas (Fig. 54, pp. 324, 325). In the west German lands the dukedom of Freisland embraced the northern coastlands. Saxony covered most of the Northern Lowland and the northern section of the Central Uplands. It fell into two sections, Westphalia and Eastphalia, that were divided by the transitional zone of the Osnabruck upland area. Franconia had its axis on the Main basin and also fell into two sections, East Franconia and West Franconia, that were separated by the woodlands of the Odenwald-Spessart-Rhôn. Swabia lay in the southwest and had its nuclei of settlement in the Rhine valley, the Neckar basin and the Lake Constance area. Old Bavaria lay on the Bavarian Plateau between the river Lech and the Enns and had a northward extension in the Oberpfalz that was established in the tenth century as a march and shortly after added to Bavaria. To the west, in the German-Romance borderlands, lay the dukedoms of Upper and Lower Lorraine. These territories lay west of the Rhinelands and stretched west to the Scheldt and the Argonne to the limits of the Empire.

To the east of the west German lands lay a belt of marks or border provinces which fell into two groups. One was in the Northern Lowlands between the Elbe and the Saale and the Oder-Bober rivers; the other was in the east Alpine lands, stretching south to Istria. The Nordmark became the nucleus of Brandenburg. East of Bavaria the Nordgau was established as a mark but was absorbed by Bavaria in a few years, and the Ost Mark or Austria was eventually severred from its parent Bavaria.

Between these two groups of marks lay the kingdom of Bohemia and the margravate of Moravia. To the east of the marks lay the dukedoms of Pomerania and Silesia, which last early detached itself from the kingdom of Poland. East Prussia fell to the Teutonic Knights early in the thirteenth century. To the south of the Beskides, from Moravia to Istria, lay the unified kingdom of Hungary.

These tribal duchies, eastern marks, and Slav duchies and kingdoms, formed the initial framework of the political and ecclesiastical groupings of west-central Europe, within which, through constant associations within them, at a time when external relations were relatively unimportant for the common people, there developed a distinct culture which persists to this day.

LATE MEDIEVAL GROUPINGS: STATES, TOWN LEAGUES, AND KREISE

In the middle of the thirteenth century the west German dukedoms were split up into a confused pattern of small territories. While unified nation-states were forged from such territorial disintegration in France and in England, feudalism now ran amok in Germany. With the end of the Hohenstaufen line, a host of petty lords fought with each other for

scattered bits of land, each endeavouring to extend and organize his territories, to protect them from his neighbour, and to squeeze from them as much revenue as possible. It is significant that the greatest disintegration took place in the Imperial lands of the Hohenstaufen in Swabia and Franconia, and especially in the rich vinelands of the Rhine and Neckar, and along the great highways of traffic. The classic instance is the Rhine gorge, where all the neighbouring territorial lords—dukes and bishops—sought for a footing on the river to draw revenue from its traffic and from its rich wine-producing towns. The towns, too, became independent authorities—all those in the Hohenstaufen lands in the southwest became Imperial cities—and they joined in the general conflict, extending their territories so as to enjoy these advantages and to ensure trade and food from the land around them: Nuremberg may be quoted as an outstanding instance. All the bishops enjoyed temporal powers, and commanded areas of varying size. But it was the old-established and powerful bishoprics of the Rhine and the Main lands (Würzburg and Bamberg) which were able to maintain the territorial integrity of their large possessions. The lands in the Northern Lowlands and in Bavaria were also saved from disintegration by a continuous succession of rulers in one dynastic family (e.g. the Babenbergers in Bavaria). In the eastern lands, the marches and the old Slav dukedoms of Pomerania, Silesia, Mecklenburg and the provinces of the Teutonic Knights—West Prussia, East Prussia, Courland and Livonia—retained their territorial shape and their political unity under single rulers. There emerged in the aggregate some 360 independent sovereign states in the Reich, nearly all of which were located in the German lands west of the Elbe and the Bohemian Forest.

At this stage we may notice two developments in the Middle Ages and after which helped greatly to differentiate one area from another, namely, the unions of towns, and the organization of the *Kreise* in the Empire on a geographical basis to maintain peace and order.

In the absence of a strong central authority, groups of towns were obliged to co-operate in order to cater for their common political and economic interests. The chief cities emerged as capitals of their surrounding territories, and, headed by the bishop or town council, they tried to build up a surrounding territory over which they could exercise full sovereign rights, and from which they could draw the food supply and local trade of the town. We may cite the cases of Cologne and Nuremberg

Fig. 54.

1. Boundary of German Reich
2. Boundary of Marks
3. Uncertain boundary of the German Reich

Districts belonging to the same Dukedom are shown by symbol:

4. Friesland
5. Saxony
6. Thuringia
7. Franconia
8. Lorraine
9. Swabia
10. Bavaria

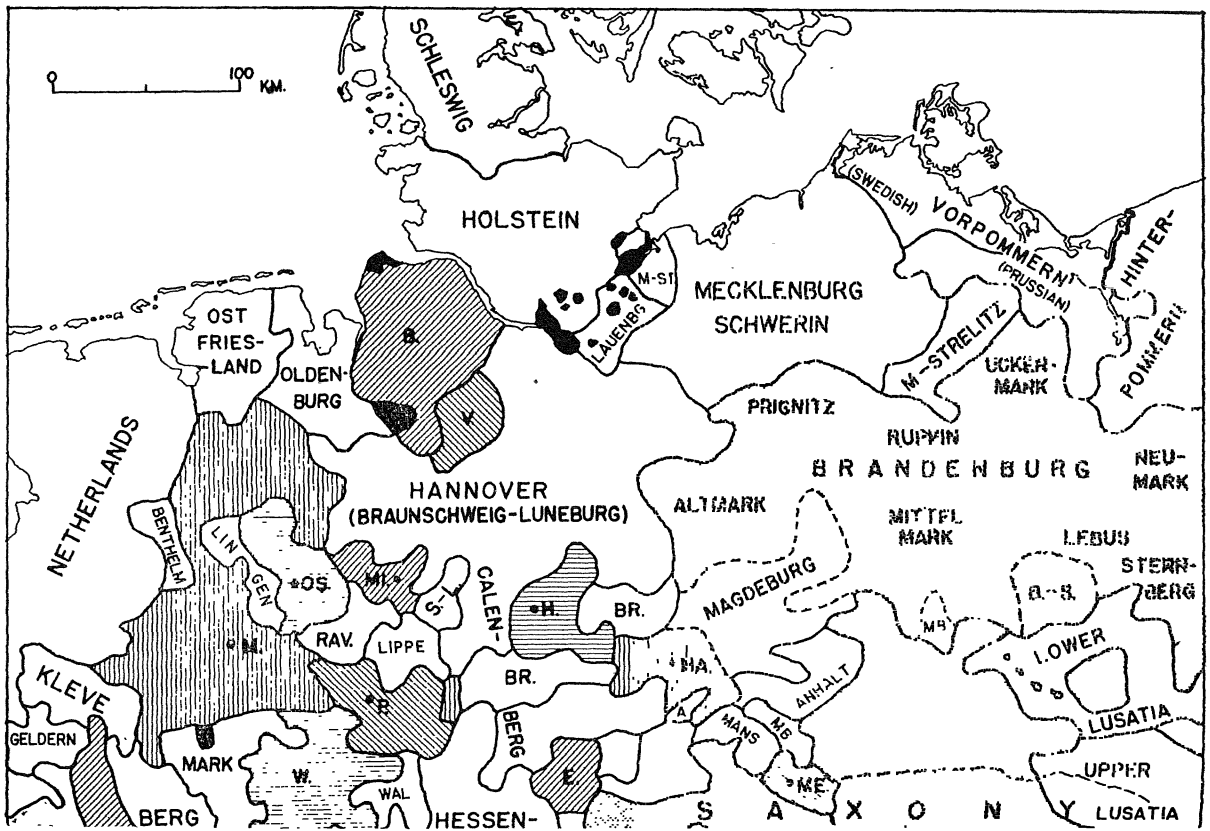
as examples. Moreover, the common economic needs and political interests of the merchants and craftsmen in the towns led to the combination of neighbouring towns for all kinds of purposes. Such groups were, in fact, not merely political groups of towns, for, since the town served primarily as the seat of commerce for its surrounding lands in both manufactured and food products, they reflect the unity and extent of distinct areas of economic activity which they served. They combined to stabilize weights and measures and coinage, to preserve the peace, to maintain the safety of the trade routes, to raise their bargaining power, and, in extreme cases, to make war. Many of these groupings were organized for *ad hoc* purposes, and their membership for these specific purposes varied from time to time. But there is an undoubted combination of groups in definite geographical areas which had kindred economic character. The largest of these unions was the Hanseatic League, which began as a union of the Baltic towns, headed by Lübeck, to defend themselves against piracy in the northern seas. It developed into a vast trading organization, including towns in Flanders, throughout the German lowlands into Scandinavia, the Baltic and central Russia. These cities were very far-flung but most of them were in the German Reich, and after 1376 they were organized into four groups, each in a distinct geographical area, whose towns had a similarity of activity and interests. These groups were the Baltic ports, with their focus in Lübeck; the lower Rhineland group, centred on Cologne; the lower Saxony group, centred on Brunswick; and the East Prussian group, centred on Danzig. In the north, the Wendish towns—Hamburg, Lübeck, Wismar, Rostock, Stralsund, Greifswald, and Stettin, the great Baltic ports for the Baltic trade—formed a firm and lasting combination. The towns of the Harz Foreland formed another group, including Brunswick, Hildesheim and Goslar. The Silesian towns were united by their common interests in the textile industry; and the weaving towns of Upper Lusatia formed the Six Town League to regulate their trade with Nuremberg. The Swabian League arose in the fourteenth century through the combination of the Imperial cities in the Swabian lands of the Hohenstaufen, and was headed by Ulm. Its original fourteen cities were joined by twenty others, including the seven cities around Lake Constance. These latter towns had their common interests in their textile industries, and the trans-Alpine commerce (Isny, Ravensburg, Ulm and Augsburg). A Rhine League of nearly a hundred towns was formed in the thirteenth century, but it did not last long, and was displaced by several small groups in close proximity. Here we find the unions of the middle Rhine towns, stretching from Mainz to Strasbourg; the League of the Ten Towns in Alsace; and the League of the Upper Rhine Towns, which included Basel, Colmar, Freiberg and Muhlhausen. The Prussian

towns formed a separate group under the unified control of the Teutonic Knights. The towns of Flanders and Switzerland formed two quite distinct groups, each of which, in large measure, was politically independent. The first group was centred on the two emporia of Bruges and Antwerp, and included many commercial and industrial towns. The second group of towns was politically associated through the *Eidgenossenschaft*, and their common interests were based on their dependence on the trans-Alpine trade and their textile industries. The towns of Flanders were closely allied with those of western Holland, and entered into commercial agreements with them in the fourteenth century. Even the towns of Austria and Styria had their separate organizations.

In the late Middle Ages the emperors made repeated efforts to re-establish some kind of general law and order in the multitude of independent sovereign states in the Reich. They endeavoured to widen the basis of the regional associations of towns, by the group action of sovereign states in compact geographical areas, for the maintenance of peace and order. These areas were called *Kreise*, and were concerned primarily with raising and financing of troops. Efforts of this kind date from the fourteenth and fifteenth centuries, but a permanent reorganization of a limited number of areas was not effected until the Treaty of Augsburg in 1555. There were in all ten *Kreise*, and their functions, slender though they were, persisted until the end of the Reich. These areas reveal the permanence of old frontiers and political units. The boundaries of the dukedoms in the west reappear in the *Kreise* and the old stable divisions in the east persist. The Netherlands (excluding the bishopric of Liége in the Meuse valley), the province of Burgundy, and Switzerland, all form distinct *Kreise*. In the east, groupings of two or more of the old provinces form the Austrian (or Habsburg) and Upper Saxon (Saxony, Brandenburg and Pomerania) *Kreise*. Bohemia-Moravia and Silesia were excluded from the scheme. The *Kreise* in the remainder of the German Reich were Franconia, Bavaria, Swabia, Upper Rhine (Alsace-Lorraine), Hesse, as a detached but compact partner area, Lower Rhine-Westphalia, and Lower Saxony. The Kurrhein *Kreis* contained several territories in the middle Rhine lands that included the bishoprics of Cologne, Trier, Mainz and Speyer, and the Palatinate.

POLITICO-GEOGRAPHICAL GROUPS IN 1790 AND 1815

The political map of 1790 was basically the same as five hundred years previously (Fig. 55). The main changes after 1600 were the growth of four states, Prussia, Saxony, Bavaria and Württemberg. The last three extended their boundaries slightly but the greatest changes were brought


100 KM.
SCHLESWIG
HOLSTEIN
(SWEDISH) VORPOMMERN
(PRUSSIAN)
HINTER-
POMMERN
M-ST
LAUENBG
MECKLENBURG
SCHWERIN
M-STRELITZ
UCKER-
MARK
PRIGNITZ
RUPPIN
BRANDENBURG
NEU-
MARK
OST
FRIES-
LAND
OLDEN-
BURG
B.
H.
NETHERLANDS
HANNOVER
(BRAUNSCHWEIG-LUNEBURG)
ALTMARK
MITTEL
MARK
LEBUS
STERN-
BERG
BENTHEIM
LIN
GEN
OS.
M.
RAV.
LIPPE
CALEN-
BERG
BR.
MAGDEBURG
MB
LOWER
LUSATIA
KLEVE
GELDERN
MARK
W.
WAL
BERG
HESSEN-
ANHALT
HANS
ME.
UPPER
LUSATIA
S A X O N Y

Rav. = Ravensburg
Wal. = Waldeck
M.St = Mecklenburg-Strelitz
B-S = Beeskow-Storkow
Mz = belongs to Kfm. Mainz
H-D = Landgrafschaft Hessen-Darmstadt
N-S = Gft. Nassau-Saarbrücken
Dur. = Durlach
Bad. = Baden
Mans. = Gft. Mansfeld
Hoh. = Fsm. Hohenlohe
Neu. = Hzm. Neuburg
Note. Initial letters refer to bishoprics. Magdeburg (MB) and Halberstadt were bishoprics until 1680.

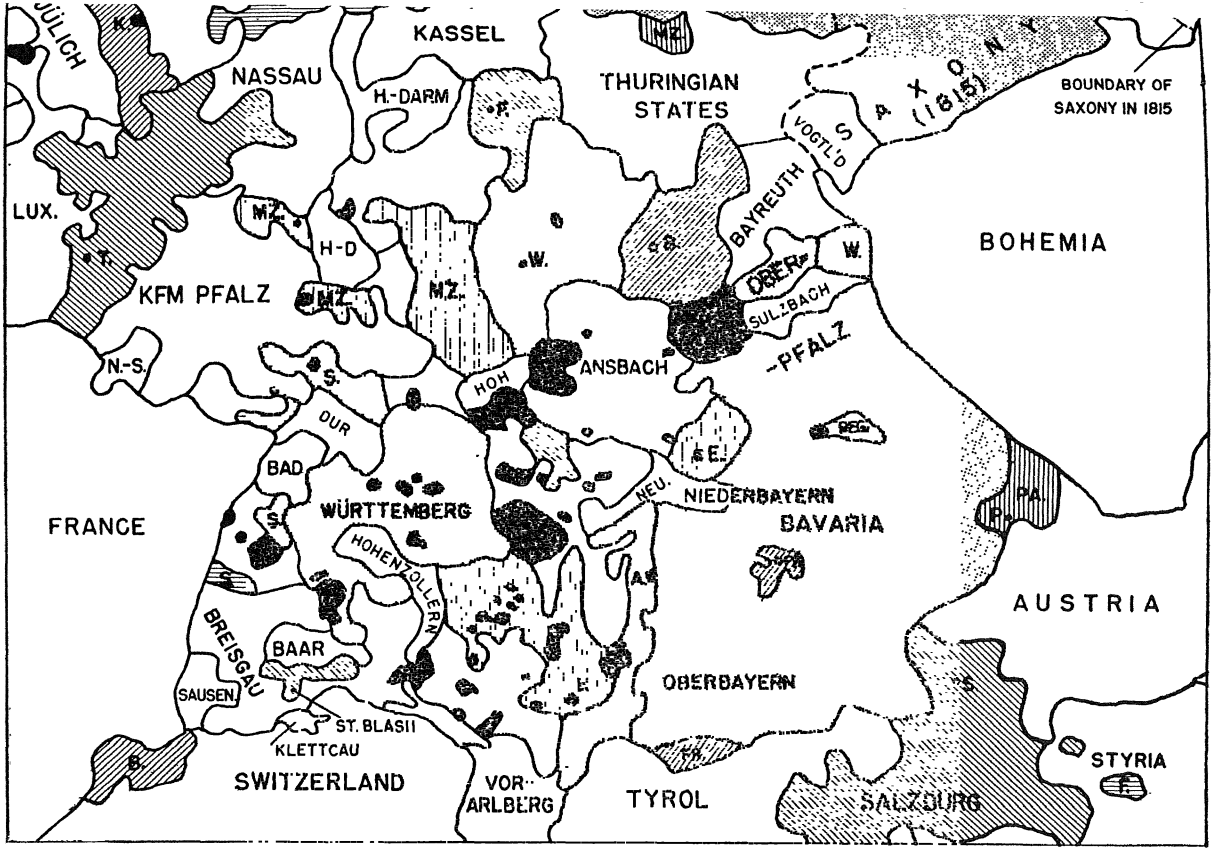


FIG. 55—GERMANY: POLITICO-CULTURAL DIVISIONS IN 1790 (*by the author*) (scale, 1 : 4 m.)
This map generalizes the largest territories in 1790 and omits the complex patterns of small territories in Thuringia the southwest, the middle Rhinelands, and the Weser Uplands area. Stippled areas show Brandenburg, Saxony, Bavaria and Württemburg, each about 1600. Hatched areas show bishoprics in 1790. Black are Imperial Free Cities. Other areas are named but unshaded. (*Grafschaften* or counties, *Furstentum* or Princedom, *Herzogtum* or dukedom, *Königreich* or kingdom). *Key to Initials:*

about by the growth of Prussia in the Northern Lowlands. From its nucleus in the Altmark of Brandenburg, Prussia first expanded eastwards to control the two wings of territory in West (1772) and East (1618) Prussia to the north, and Silesia (1742) to the south. To the west it annexed, in the seventeenth century, various scattered territories between the Rhine and the Weser (Cleve, Mark, Ravensburg, Magdeburg, Halberstadt, Minden). Bavaria under the Wittelsbach dynasty stretched from the Alps to the Bohemian Forest, from the Lech to the Inn, adding the Rhineland Palatinate in 1777. Its nucleus lay south of the Danube, the area to the north being known originally as the Nordgau. Saxony developed in the Middle Ages in the upper part of the middle Elbe basin, between the Mulde and the Elster, from a very confused territorial pattern, which included as its core the mark of Meissen. Her chief annexation after 1600 was Lusatia. Württemberg had its nucleus in the middle Neckar basin. Apart from these lands, the old provinces in the southeast remained under the rule of the Habsburgs. They included the kingdom of Bohemia, the margravate of Moravia, the dukedoms of Austria, Styria, Carinthia and Carniola, the county of Tyrol, together with the isolated territories in northern Switzerland, and the upper Rhine plain, where the Habsburg line originated.

In the west, outside the territories we have noted, extreme disintegration was characteristic. The largest unified lands belonged to the most powerful bishoprics—Münster, Cologne, Trier and Mainz—in the Rhinelands: Würzburg and Bamberg in the Main lands; Augsburg and Salzburg in the Alpine area. The independent free cities, the so-called Imperial Cities, which became fully independent authorities with the end of the Hohenstaufen line, are located almost exclusively in the territories of that house in Swabia; in the north were the great emporia of Lübeck, Bremen and Hamburg. Lastly, a host of petty lords, chiefly in the former Imperial lands, divided the land between them.

In this general development Prussia expanded to include all the eastern lowland provinces, and began that expansion westwards which in the nineteenth century eventually unified all the Northern Lowlands. This brought out the strong difference in the political development and politico-geographical structure between the Northern Lowlands, southern Germany, and the Habsburg lands.

The Holy Roman Empire of the German Nation tottered and collapsed at the end of the eighteenth century before the onslaught of the armies of Napoleon. By the Treaty of Basel in 1795 Prussia granted to France the Rhine as a frontier and France took possession of the left bank in 1798. In 1803 the life of the Empire neared its ignominious end. Talleyrand in Paris caused nearly a hundred and fifty sovereign states to disappear from the map, including all the territories of the eccle-

siastical princes, and the free cities, with the exception of Hamburg, Bremen, Lübeck, Frankfurt, Augsburg and Nuremberg. These lands were distributed among the secular princes, an act that was recognized at the Congress of Vienna. The defeat of the combined Prussian and Austrian forces at Austerlitz in 1805 by the French forces was followed by separate treaties imposed by Napoleon on Austria and Prussia. In 1806 sixteen German princes in the west formed the Rhenish Confederation with Napoleon as Protector, and the lands of seventy other small lords were divided between them. In the same year the Emperor abdicated. Prussia collapsed before Napoleon. The kingdom of Westphalia was established under Napoleon's brother, and included the Prussian territories west of the Elbe together with Brunswick and Hesse.

The states of the Confederation were reorganized in constitution and geographical composition by rulers who were French in origin or sympahy and were put there by Napoleon. Thus, Bavaria was reorganized by Maximillian Count Monteglas, and similar reforms were introduced in Württemberg, Baden, Hesse, and Westphalia.

Prussia attempted great reforms in the period 1807 to 1811. Serfdom was abolished by the decrees of Stein, but these were distorted by the Junkers in the east so as to dispossess the peasant. Municipalities and rural government districts were reorganized and freedom of trade between the provinces was established. Stein's liberal reforms were premature for an aristocratic, autocratic Prussia, and Hardenberg adapted them with the purpose of creating an efficient Prussian state.

With the formation of the German Confederation (*Der Deutsche Bund*) in 1815 the politico-geographical pattern was much simplified (Fig. 56). The 360 independent sovereign states were reduced to 39 in 1803 by France, and this was recognized by the Congress in 1815. Many of the disintegrated territories had been amalgamated, especially in the southwest, where the states of Baden, Württemberg and Bavaria were created, although they correspond closely to the political groupings which preceded them. Numerous scattered territories remained in the Central Uplands and in the middle Elbe basin. Everywhere the temporal power of the bishops had been destroyed and their territories secularized and absorbed into new states. Outstanding is the expansion of Prussia in the Northern Lowland. It expanded westwards at the expense of Saxony to the middle Weser in Thuringia; and added the lower Rhinelands, which were organized into the two new provinces of Rheinland and Westfalen, though the older divisions were retained as the basis of the new administrative framework. In the east, the old provinces were retained—Mecklenburg, Pomerania, Brandenburg, Silesia, East and West Prussia. The Altmark, together with the Magdeburg district, formed the new province of Saxony, bordering on the kingdom of that name to the

south of it. Between the eastern and western lands of Prussia a wedge was preserved in the kingdom of Hanover, which was attached to the English crown as a bar to the territorial consolidation of Prussia. Bavaria retained the Palatinate and added the territories of the bishoprics of Bamberg and Würzburg, in the Main lands. Austria lost its Rhineland possessions and became a compact land, including the central and eastern Alps, the Danube valley and Bohemia-Moravia. It should be noted that the federal Diet had a membership of 39 in 1817, reduced to 33 in 1866, and that the smaller states were grouped in *Kreise* so as to give an effective membership of 17.[1]

THE HISTORICAL POLITICO-CULTURAL GROUPS

Historical maps of the German Reich before 1806 show by a patchwork of colour nearly 400 independent authorities in the Holy Roman Empire, while in the nineteenth century such maps show the extension of Prussia across the Northern Lowlands and the independent states to the south of it. There are, however, provinces, often consisting of many scattered and interlocking territories before 1815, and even in modern times, which in history have held together as permanent units of social life and organization from the early Middle Ages to the present day. It is to these provinces that we wish to draw attention. Thus, we are concerned not with the expansion of Prussia but with the historical provinces which it absorbed. We are not concerned with the fact that the south German states were entirely new creations in the *political* sense in 1815, but that, in the main (for there were considerable territorial readjustments), they were simply the successors of territorial units of social and economic organization which had existed for centuries. The peoples in these provinces were welded together by similarity of environment and location, by their distinct separation from neighbouring areas, both by natural barriers and by permanent political frontiers, and by their common experience in peace and war, and their common economic activities. Some were, and still are, independent states, others were only historical provinces; and all enjoy a varying measure of cultural individuality. It is for this reason that we shall refer to these areas as politico-cultural provinces. They are shown in Fig. 55. This should be compared with the politico-geographic pattern in 1815 (Fig. 56).

As a German writer has pointed out,[2] it is absurd to trace the ethnic and cultural character of these provinces, especially in the west German lands, to the original traits of the German tribes or *Stämme* and to identify their extent with the initial extent of the tribal confederations.

[1] A. J. P. Taylor, *The Course of German History*, 1945, p. 74.

[2] W. Vogel, *Deutsche Reichsgliederung und Reichsreform in Vergangenheit und Gegenwart*, 1932.

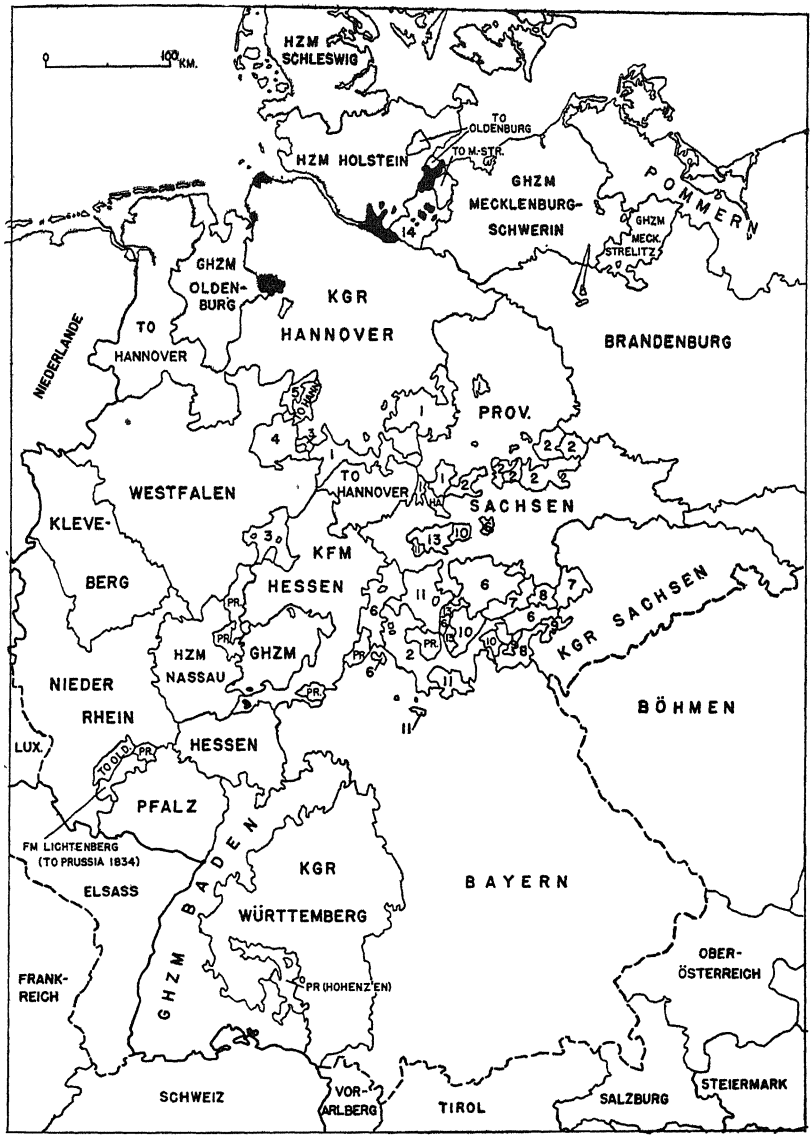


FIG. 56—GERMANY: POLITICAL DIVISIONS, 1815–71 (*from A. d. D.L.*)

(scale 1 : 6 m.)

1. Brunswick (HZM)
2. Anhalt (FM)
3. Waldeck (FM)
4. Lippe-Detmold (F)
5. Schaumburg-Lippe (F)
6. Weimar-Eisenach (GHZM)
7. Altenburg (HZM)
8. Reuss-younger-line (F)
9. Reuss-older-line (F)
10. Schwarzburg-Rudolstadt (F)
11. Koburg-Gotha (HZM)
12. Meiningen (HZM) (numbered 2)
13. Schwarzburg-Sondershausen (F)
14. Lauenburg (HZM)

Independent cities shown in black:

Pr = Territories belonging to Prussia
KGR = Kingdom
GHZM = Great Duchy

HZM = Duchy
F = Principalities

The tribal duchies and the eastern border marches with the Slav provinces beyond them formed the foundation on which the political and cultural groupings have been built. These groupings of peoples, together with the imprint of their peculiar culture forms on the countryside and towns, have developed through the medium of a common group life through centuries of history. In the eastern lands there has been a remarkable persistence of the outline of the provinces from the early Middle Ages. On the other hand, smaller politico-cultural provinces developed from the western tribal duchies, although the boundaries of dialects, culture forms and ancient tribal boundaries are often remarkably coincident and form, therefore, cultural divides of the first importance. Moreover, a comparison of the map of the politico-cultural provinces and the relief map (Fig. 13) reveals clearly that many of these provinces correspond with well-defined physical units, characterized by populous and early-settled nuclear areas, and frontier zones, which in the past, if not at present, were thinly peopled and formed definite barriers to human movements.

The tribal duchies of Upper and Lower Lorraine have experienced the greatest changes in history. The Burgundian state of the Netherlands established by Charles the Great split into two distinct provinces. The United Provinces, later known as Holland, is united by a common language, religion and history. The remnant of the Netherlands to the south, containing both Flemings and Walloons, was more closely affiliated to French culture, and formed the Spanish Netherlands, later the Austrian Netherlands, and, after a short period of union with Holland, finally became, in 1839, the new state of Belgium. To the south lay Luxembourg, which, through territorial losses in the early nineteenth century to Belgium, Prussia and France, was whittled down to its present size. Lorraine, with its nucleus in the Moselle valley, is a well-defined politico-cultural and physical unit between the Vosges and the Argonne uplands.

In the west German lands the framework of the politico-cultural provinces shows a close relation to the boundaries of the tribal duchies (Fig. 14). Bavaria has always retained the shape of its medieval dukedom, bounded by the Danube, Lech, Enns and the Alps. In 1815, through the annexation of new lands which historically were not allied to it, Bavaria included three provinces: the old Bavarian homeland in the Bavarian Plateau east of the Lech; the central area of the secular states of Nuremberg, Ansbach and Bayreuth, seats of great medieval industry, and mainly Protestant in faith; and the Catholic bishoprics of the Main valley which, when secularized, were added to Bavaria, although culturally they are more closely allied to Franconia. From the latter duchy of Franconia, that extended from Lorraine to Thuringia, there emerged the bishoprics of Würzburg and Bamberg just noticed, and, west of the

Odenwald and Spessart uplands, the nucleus of old Franconia in the north of the upper Rhine plain appeared in 1815 as the provinces of Hesse-Nassau, and, beyond the Rhine, the Rhenish Palatinate, that became, in fact, an outlier of Bavaria. Swabia in southwestern Germany fell into a bewildering pattern of small territories. The whole southwest was greatly influenced by Romance culture. Its territorial mixture is reflected in the great confusion in the distribution of Protestant and Catholic religions. Its lowlands have always been important seats of vine production. Each of its constituent provinces—Alsace, Baden, Württemberg and German Switzerland—has formed a distinct historical unit of human life and organization, clearly separated from its neighbours by natural barriers—the wooded uplands of the Franconian and Swabian Jura, the Black Forest and the Vosges.

In central Germany, in spite of its political heterogeneity, we note the association for centuries of its tattered parts to form the provinces of Hesse, whose nucleus was in the Hessian Corridor, and of Thuringia, in the lowland of that name. The latter, roughly coextensive with the old duchy of Thuringia, split into many territories and Ruritanian states, which were not united to form a compact state until 1919.

In the Northern Lowlands, the southern limit of the medieval dukedom of Saxony is still clearly traceable in the map of 1790 as the boundary of Münster and Hanover, and the same line appears in the reorganized territories of 1815. It is the southern limit of Low German dialects and of the German Nordic racial type, in addition to being a divide of the first importance in respect of historical development and cultural forms. In its politico-cultural fabric the early dukedom of Saxony falls into two parts, which during the course of history have carried various political names. The one is Westphalia and the other Lower Saxony (*Niedersachsen*). These two areas are distinct in their religion, the one Catholic, the other Protestant; in their historical development; in the character of their settlements, both rural and urban, their house types and their folklore. Between them lie Oldenburg, Schaumburg-Lippe, Lippe, the bishopric of Osnabrück, and the Grafschaft of Ravensburg. In history, as at the present, all of these have had their allegiances, political, cultural and economic, divided between Westphalia and Lower Saxony. They are, however, predominantly located in the Weser hill country in a belt south to Kassel.

From the complicated territorial pattern of the lower Rhinelands there emerged in 1824 a single Prussian province on the west side of the Rhine which, closely tied up with the territories which preceded it, extended to the western frontier of the Confederation and included the bishopric of Trier. (A province of Jülich-Kleve and Berg was first established in 1815, and in 1824 it was absorbed into the new province of Rheinland.)

Its eastern frontier runs parallel to the eastern bank of the Rhine against Westphalia, and this boundary closely fits with the western boundary of the old dukedom of Saxony and the bishopric of Münster which succeeded it.

East of the Elbe-Saale, the Bohemian Forest and the lower Inn, lie the Prussian and the Habsburg lands. Here there is a clear continuity of the politico-geographical structure from the early Middle Ages onwards. In the Prussian lands in the Northern Lowlands, Brandenburg, Mecklenburg, Pomerania, East Prussia and Silesia are old politico-cultural provinces which are also well-defined physical units. The middle Elbe basin above Magdeburg is an area of territorial complexity. From the first marches of Zeitz, Meissen and Lusatia there emerged the Thuringian March in the eleventh century. This became the nucleus of the lands of the Wettinian dynasty, which covered all the area in 1789. In 1815 there emerged here the kingdom of Saxony on the slopes of the Erzgebirge, and the new Prussian province of Saxony to the north of it with the independent state of Anhalt inside it, while Lower and Upper Lusatia, two old and stable units, passed to Brandenburg and Silesia respectively.

The Habsburg lands to the south and east include several large and persistent units. The Tyrol lies astride the central Alps, and has its two chief settled areas in the Inn valley to the north and the Etsch and Eisack valleys in the south. The Salzburg bishopric is continued in the present political pattern. Bohemia and Moravia have persisted for a thousand years. Three historical units are evident in the modern political divisions of the eastern Alps. There are: Austria, the Ostmark, with its capital in Vienna; Styria, centred on the Mur valley with its capital in Graz; and Carinthia, focused on the Drave valley, and with a strong Slav element in its people and culture. South of the Karawanken mountains is the Slovene province of Carniola, that impinges on the Istrian peninsula and lies adjacent to the province of Croatia.

In brief, there is a remarkable tenacity in the general alignment of the older frontier lines, many of which can be traced back to the boundaries of the early medieval duchies and marches. These politico-cultural provinces enclose the really effective human entities which developed in the formative phase of both the politics and the culture of the German lands, and in spite of often kaleidoscopic changes in the political fabric, they are always traceable, overriding the anomalies of political structure, which are often the result of fortuitous events. The peoples of these provinces, while sharing, in varying measure, in the common German culture heritage, have their own cultural and national character, which is based on centuries of independent historical development. The sovereign independence of a number of these peoples was modified by the domi-

nance of Prussia and by the ruthlessness of the Nazis, both within the political boundaries of Germany and in the states which border it.

THE REICH AND ITS POLITICAL DIVISIONS

The German Confederation grew out of the Confederation of the Rhine that was organized by Napoleon in the west German lands. It was assigned the boundaries of the old Reich with the exclusion of East Prussia and of the territories acquired by the partitions of Poland, namely, West Prussia and Posen. It included Bohemia-Moravia and Austria, so that the eastern boundary ran from the Beskide Mountains to the head of the Adriatic Sea.

The customs union of the German states was the next important step to the unification under the guidance of Prussia. The Prussian provinces were divided from each other by tariff barriers and other impediments to human intercourse and in 1818 a uniform tariff system was adopted. The smaller states were forced one by one to enter the system during the next ten years. The lesser states objected to such selfish coercion and established customs unions among themselves so as to make a united Germany unnecessary. In 1828 tariff unions were made between Hesse-Darmstadt and Prussia, and between Bavaria and Württemberg. In 1834 the various groups formed one single union, the Zollverein, that embraced all the states except Austria, Hanover and Hamburg. This development, it has been stated, "was not a step towards the unification of Germany, but a device for making the unification (under Prussian tutelage) less necessary".[1]

After the war between Prussia and Austria in 1867 the latter withdrew from German affairs and the German Confederation was dissolved. The states north of the Main with the exception of Saxony were annexed by Prussia to form the North German Federation. The Reich of 1870 emerged through the alliance of the south German states with the North German Federation, skilfully managed by Bismarck, after a short and successful war against France. At this time the German alliance had 40 million people, as compared with France's 37 millions. The two opponents in effect were numerically equal. The difference lay in their war potential, in their preparedness for war.

The second German Empire, as established in 1871, was a union of twenty-six states under the leadership of an emperor. There were twenty-two monarchies: four kingdoms (Prussia, Bavaria, Saxony and Württemberg); six grand duchies (Baden, Hesse-Darmstadt, Oldenburg, Saxe-Weimar-Eisenach, Mecklenburg-Schwerin, Mecklenburg-Strelitz); five duchies (Anhalt, Saxe-Altenburg, Saxe-Meiningen, Saxe-Coburg-

[1] A. J. P. Taylor, *The Course of German History*, 1945, p. 62.

Gotha, Brunswick); seven principalities (Waldeck, two Schwarzburgs, two Lippes, two Reuss's). Besides these, there were three city republics—Hamburg, Bremen and Lübeck, the old Hansa cities, and one "Reichsland" or imperial territory, namely, Alsace-Lorraine, that was acquired from France in 1871 (Fig. 56).

Various changes took place after this date and in 1939 Germany contained the following states: Anhalt, Baden, Bavaria, Bremen (free city), Brunswick, Hamburg (free city), Hesse, Lippe, Lübeck (free city), Mecklenburg (formed in 1934 by the union of the two Mecklenburgs), Oldenburg, Prussia, Saarpfalz or Saarland (returned to Germany by plebiscite on March 1, 1935), Saxony, Schaumburg-Lippe, Thuringia (formed in 1919 by the union of the seven states of Saxe-Weimar, Eisenach, Saxe-Meiningen, Gotha, Saxe-Altenburg, Schwarzburg-Rudolstadt, Schwarzburg-Sonderhausen, and the two republics of Reuss) and Württemberg.

The political framework of 1939, on which the post-war pattern has been built, is shown on Fig. 57 (p. 368). Prussia, covering two-thirds of the area of the Reich, embraces most of the Northern Lowland, though it includes west of the Rhine Massif and the Hesse Corridor. Oldenburg, Mecklenburg, and the free cities of Hamburg, Bremen and Lübeck have sea-frontages on the northern coasts. In the centre there occurs the greatest complexity, for here are Anhalt, Brunswick (split up into twenty-eight parts), Lippe and Thuringia (formed from seven separate states), and Waldeck (absorbed by Prussia in 1934), together with various outliers of Prussian territory in Thuringia. The dukedom of Hesse is shaped like an hour-glass, with the old free city of Frankfurt in the waist. This waist included the Prussian province of Hesse, but formerly fell into two almost completely separate parts, the dukedoms of Nassau and Hesse, which had their common frontier on the west side of Frankfurt. The two areas were absorbed by Prussia and organized into one province in 1866. South of this heterogeneous group of central Germany are the compact states of Bavaria, Saxony, Baden, Württemberg. The Pfalz, a large compact outlier of Bavaria, forms a distinct politico-cultural entity, as the 1790 map reveals. The southern section of Hesse lies well to the south of the Main beyond Mainz and Frankfurt. An exceptional feature here is the lone Prussian outlier of Hohenzollern, homeland of the Imperial line, in the midst of Württemberg.

The emergence of these states as politico-geographical units has been examined, but we must now turn to the administrative divisions within each state. These were introduced in the lands of the Confederation on the pattern of the French system and were copied in Prussia under the leadership of Stein and Hardenberg.

Many important changes were made at the end of the eighteenth cen-

tury and in the early nineteenth century in the administrative units of western Europe. These changes were made in the heyday of road transport, just before the development of modern factory industry and the advent of the railway. The most important change was the creation of the Departments in France in place of the historical provinces. Each department was so defined as to have a central city chosen as its administrative centre accessible to all parts of the department in a day's journey. The historical province was abolished from the administrative system, although the department often shows a close relation to the earlier province, usually by a simple division of one province to form two or three departments. Each department was later divided into *Cantons* and *Arrondissements* defined on the same principle of the accessibility of a central town.

In Germany, similar changes took place, partly under the Prussian kings, partly through the reforms of the Napoleonic regime in the western states. We find, in pre-war Prussia, a fivefold hierarchy of administrative units, which came into being at the beginning of the nineteenth century. The *Provinz* was normally the direct successor of the old historical unit. The *Regierungsbezirk* and the *Kreis* (*Land* and *Stadt*) were new districts. The *Amt* was the successor of the group of several parishes or *Gemeinde* established in the later Middle Ages with its centre in a castle town. The main features of this system are repeated in the other states, although the names of the districts vary. The states of the Reich, referred to as *Länder*, are equivalent to the provinces of Prussia in this hierarchy. It may be noted, however, that many of these states are very small, though they enjoyed for centuries the full powers and status of independent sovereign states. In consequence, the small capital city is very distinctive among the towns of Germany.

It is of interest to note the comparative size of these administrative units. In Prussia the *Landkreis* and its equivalent in Saxony are remarkably equal in area. Each is compact in shape with a central town and has an average diameter of 20–30 km. This is comparable with the French canton. The English rural district, based on the earlier Poor Law Union, has an average diameter of about 15 km., that is, it is of the same order. The *Kreis* in Bavaria is the equivalent of the Prussian *Regierungsbezirk* and is roughly equal to a French department, with a radius of about 60–80 km. from its capital. Each *Kreis* has about 15–20 divisions each about 20 km. in diameter. The Bavarian *Kreis* and the French department and the German *Regierungsbezirk* are roughly equal in area to a medium-sized English midland county, such as Leicester or Warwick, which have a diameter of about 50–60 km.

There were twenty-five *Regierungsbezirke* in Prussia, each with an average population of 400,000. These followed closely the *Kammer-*

bezirke that were established by Frederick the Great for purposes of internal government. These divisions, in turn, closely followed the provinces or the historical divisions within them, such as Kurmark and Neumark in Brandenburg, and the provinces of Kleve and Mark and Ostfriesland and Halberstadt. The Bavarian *Kreise*, eight in number, were formerly named after the rivers that drained them, as was usually the case in the renaming of the departments of France, from whence the idea was drawn. But in 1837 they were given their present names, that were a revival of the older tribal district names. Oberbayern has an area of 6,400 square miles, but the remaining seven (including the Palatinate) have areas of 4·1, 2·1, 3·7, 2·9, 3·2 and 3·8 thousand square miles.

All this territorial consolidation of the states and the rearrangement of the local government units within them was accomplished before the first railway was built. Since then social and economic changes make necessary a more rational rearrangement of the major political divisions, and often of the smaller divisions of which they are composed. Such rearrangements were effected in some degree by the Nazis and their predecessors, and these have been continued under the auspices of the occupying military Powers by the reorganization of new states.

CHAPTER 14

REGIONALISM IN MODERN GERMANY

REGIONALISM OF POLITICAL ATTITUDES

FOR A thousand years, there was a German Reich in the heart of Europe. Though formed as the successor of the Roman Empire it was never Roman, and though enjoying the sub-title of the German Nation, it was never a nation state. Nation and state among the German peoples are developments of the nineteenth century.

Germany awakened late to a consciousness of national unity, of a "communauté spirituelle", as Ancel has put it. This consciousness was awakened in France in the fifteenth century and is symbolized by Jean d'Arc. It arose in the German lands as a reaction to outside influences, and these were predominantly French, towards the end of the eighteenth century. The movement was influenced by the wars of Napoleon and the French formation of the Rhenish Confederation in 1806 in the Rhinelands. This brief period of occupation brought sweeping reforms, although the foreign domination resulted in a rising tide of resentment and the emergence of a strong national sentiment.

In the eighteenth century the élite of Germany spoke, dressed, and ate *à la française.* The reaction against these French influences arose towards the end of the century after the campaigns of Frederick II, and found expression in the romantic nationalism of the *Sturm und Drang* movement. The leaders of this movement reverted to the origins of the German folk and found therein its national heroes. The movement also found expression in literature and music. The development of nationalism was simultaneously associated with the territorial expansion of Prussia and the consolidation of the German lands under its leadership with its capital in Berlin. With a footing on the Rhine in 1815, Prussia then proceeded to the *Anschluss* of the Rhinelands, in which French cultural penetration had always been strong and deep. This was effected through the customs union or Zollverein that was formed upon the withdrawal of French control and was completed during the 'thirties. Economic development began within this new unified political framework. It was slow but steady during the period of fifty years, down to 1870. A population of 25 millions in 1815 reached 40 millions in 1870. A protective tariff was adopted for the first time in 1865 and this served to consolidate the domestic market, excluded English manufactured goods,

and left a free field for domestic industry. A standardized currency, the *mark*, was established in 1867. The railway rapidly covered the land, a length of tracks of 470 km. in 1840 increasing to 18,000 km. in 1870. Coal production in Prussia increased from 1½ million tons in 1825 to 19 million tons in 1865, and pig iron from 134,000 tons in 1834 to nearly a million tons in 1864. The exports of woollen textile goods quintupled from 1834 to 1864 and the imports of cotton increased threefold. This development advances a stage further with the Bismarckian wars of the 'sixties with Austria, Denmark and France, so that from the *Staatenbund* there emerged the *Norddeutscher Bund* in 1867 and, finally, the federal state of the *Deutsches Reich* in 1871.

There followed the phenomenal growth of the next forty years, an astonishing and ominous, but inevitable, social and economic transformation. It was an age of coal and iron. Coal production jumped from 26 million tons in 1870 to 109 in 1900 and then to 153 in 1910. Production of coal increased tenfold in the Ruhr (11 to 114 million tons) and fivefold in Upper Silesia (6 to 34 million tons). It was the era of great capitalists, the *Gründerzeit*, the age of the Industrial Magnates—Krupps, Thyssen, Stinnes and Kirdorf—that witnessed the development of the *Kartel* through the vertical and horizontal integration of industry in the Ruhr and its dependent iron-producing area in Lorraine.

Social reforms were also rapidly effected—progress in hygiene, social insurance, workers' unions and the like. The grouping of miners and iron and steel workers into socialist syndicates began in Saxony by Liebknecht, a disciple of Marx, and were based in part on earlier unions that emerged in the sixteenth to eighteenth centuries. The Roman Catholics of the Rhinelands took an active interest in social welfare and here developed the Christian socialist movement and the Catholic Centre political party. In the 'seventies the Social Democratic movement, though it had its origins in Saxony, took firm root in the Ruhr in the 'seventies. From both movements there emerged two big unions among the Ruhr miners, that of the Social Democrats being by far the more powerful. This was treated harshly by Bismarck and its demands were in large measure countered by his social insurance legislation in the 'eighties.

The *Kulturkampf* of Bismarck (1873–9) was a struggle between the individual and the state and the problem lay in the treatment of the Roman Catholic Church and the organized groups of the industrial proletariat. It was, in effect, a struggle with the peoples of the Rhinelands in the effort thoroughly to incorporate them in the body politic of the new Reich. This was a matter of vital importance since the natural resources and new industries of the Reich were overwhelmingly concentrated in the Rhinelands. Throughout the nineteenth century there was discrimination against the Roman Catholics, who found it difficult to hold

public posts in the western provinces where they formed an overwhelming majority. The *Kulturkampf* also took the form of discrimination against the Slavic (Polish) peoples in the east and vigorous efforts were made to Prussianize these folk in school, church and market place by the suppression of their native tongues. Indeed, this was an era that was in large measure dictated by the Industrial Magnates of the west. Here, too, masses of population accumulated in the great industrial areas, so that the Rhinelands increased greatly in population and played an ever-increasing role in the policies of the Reich.

The development of large-scale industry and the influence of the *Magnaten*, however, was counterbalanced in the policies of the Reich by the development of agriculture in general and particularly by the political influence of the *Junkers* in the agricultural east. The conflict of Magnate and Junker is a keynote to much of the political development of Germany between 1870 and 1914, within the general framework of a beneficent national socialism, that aimed at the improvement of conditions of both industrial and agricultural workers, by steps that were progressive, but very slow.

In the east, beyond the Elbe, are the lands of Prussia, the lands of the great estates, controlled by the Junkers with a landless peasantry, a rural proletariat, as their workers. The reforms of Stein and Hardenberg, it is true, abolished serfdom, on the lines that had been finally effected by the French in the Rhinelands during the Napoleonic occupation, but the peasant found his status changed merely from that of a servile labourer to that of a landless labourer. Economic development and cultural progress were tardy in the Prussian lands. The bulk of the peasantry were still in large part Slavic in the eighteenth century, illiterate and with no experience of self-government. Especially was this true in the land of Silesia, which, when acquired by Frederick the Great in the late eighteenth century, was an indefinite frontier zone between German and Polish speech and culture. As the Prussian kings extended their territories in the east they established universities for the diffusion of Germanic culture. The provinces that were early absorbed into the German realm early acquired universities. Rostock and Greifswald date from the early fifteenth century, and Jena from the sixteenth century. Kiel dates from 1665 and Breslau from 1702. Thus, the first State Universities of Frankfurt-on-Oder and Königsberg were founded in the sixteenth century, and the University of Halle in 1694. The University of Berlin was not established until 1810, where Fichte spread the gospel of the German Nation in his *Reden an die Deutsche Nation.*

The social reforms introduced by the French in the west, where indeed the peasantry had long enjoyed freedom from feudal servility, necessitated such reforms in the eastern provinces of Prussia. These steps were

taken slowly and not very effectively at several dates during the next hundred years.

Stein and Hardenberg (1807–11) abolished feudal status and feudal dues. But during the next years the *Gutsherren* developed large-scale commercialized farming, and the peasant became a landless labourer, like the peasants throughout much of east-central Europe at that time. This is a movement that began in the seventeenth and eighteenth centuries in Schleswig-Holstein, where it was particularly associated with the consolidation of peasant holdings and the hedging of fields in order to fit the needs of a long system of rotation with an increasing specialization on livestock (*Koppelwirtschaft*). Here, however, there emerged independent consolidated peasant holdings with dispersed farmsteads, as well as larger estates. Further east, the great estate remained the rule. The sale of crops from the large estates was reflected in the growth of flour mills (rye), sugar refineries (after the introduction of sugar beet), breweries and distilleries (from potatoes). These activities could not absorb the population, that grew in virtue of high birth rates, and the urban centres of Berlin and the Elbe lands absorbed them in large numbers. The peasant was a landless labourer on the vast estates of the Junker, and the Junker represented the agricultural interests in the Reichstag in opposition in most issues to the Industrial Magnates of the west. A further attempt to better these conditions was taken by Bismarck by various laws in the 'nineties that were designed to settle Germans on the land on their own adequate holdings. This was effected especially in the Polish lands on the eastern frontier, and was designed as one of the means of Prussianizing the Polish people. It did little, however, to relieve the thirst for land of the German farm labourers. The great landowner remained predominant and only a very small proportion of land was held by small or medium-sized farm holdings, that could be worked effectively by a peasant and his family with some outside labour. The Nazis sought to increase the number of family holdings. They sought to establish a *Bauernadel* by the introduction of hereditary rights for holdings of an adequate size. About $5\frac{1}{2}$ million acres were disposed of in this way into family farm units. But the large estate still remained dominant and the majority of the country folk possessed no land. Such a revolution in land ownership, it should be noted, took place in some of the succession states in east-central Europe in the inter-war period.

It will be apparent that in this modern development of the Reich, and more particularly of Prussia, there were two main class interests, the Junker and the Magnate, the one representing the agricultural interests of the east, the other the industrial interests of the west. Here, too, was a social contrast between a landless peasantry in the east and a country of small landowners and a *Klein Bürgertum* in the west and, again, between

Protestants in the east as against Catholics in the west and south. But across this general pattern there emerged also the concentration of population and working-class interests in the great cities in the industrial belt from Aachen to Upper Silesia. Saxony and the Ruhr were the two chief seats of social and political party agitation among the workers in the 1870–1914 period. Social Democracy had its origins in Saxony and the Catholic Centre Party in the west with its ideas of Christian Socialism. Both of these parties attended to the interests of the workers and the small professional man, the proletariat and the *Klein Bürgertum*.

The Conservatives represented the Junkers' agricultural interests and the Protestant Church. The Liberals represented the Magnates and large industrial and commercial interests. The Clericals (Centre) represented the Catholic Church and advocated, among other things, a beneficent State Socialism (through the Christian Socialists). The Social Democrats represented the interest of the workers. They had one member in the Reichstag in 1871 out of nearly 400. In 1912 they numbered 110 and were the strongest single party, closely followed by the Centre Clericals (93).

These were the parties which, in coalition, adopted the republican constitution at Weimar in July 1919. Before 1922, the Weser river and its continuation southwards through the centre of Bavaria divided democratic voting majorities (i.e. Social Democrat, Democrat, and Catholic Centre parties) in the west from non-democratic majorities (including the Right and Left parties) in the east. Communists obtained more than 20 per cent of the votes in the last free elections in November 1932 in Berlin, central Germany, the Ruhr and Hamburg.

Germany has had a double front in the cultural as well as in the military sense. The first front lies to the west. The Rhinelands have long been deeply penetrated by the ideas, ways of thought, and manners of French civilization, that Prussia sought to exterminate, and with much success, in the nineteenth century through a cultural *Anschluss*. Cultural penetration from France in the seventeenth and eighteenth centuries was followed by political annexation by Napoleon and the introduction of political, social and economic reforms throughout the Rhinelands during the Napoleonic wars. After the ignominious defeat of France in 1871, German influence became paramount. Bismarck and his successors compromised with the social and economic interests of west and south by tolerance of the Roman Catholic Church and by an elaborate system of state socialism, that protected the industrial and farm workers, the craftsman, and the shopkeeper. Outstanding was the system of social insurance, inaugurated by Bismarck, and elaborated by his successors.

French military sway was resumed after World War I through the demilitarization of the Rhinelands and military occupation for fifteen

years. In 1923 French troops occupied the Ruhr, on the claim that the Republic had failed to make its guaranteed reparation payments. This was met by "passive resistance" and was economically disastrous. A resumption of a policy that would capitalize on the historic role of the Rhineland as a transitional zone and a military buffer, and as the heart of Germany's economic and military power, lies behind French policy today.

The second frontier zone of Germany is to the east. Here the peasantry is still largely landless. Here in Saxony there is a great new industrial complex alongside the old industrial area in Saxony. Reforms of land ownership were sorely needed in the eastern provinces of Germany. These had begun to be tackled by the Nazis. They have been precipitated by the Russians. Today the Russian control extends west to the Elbe, and this whole zone is passing through a phase of social, economic and political change comparable, in effect, with the changes brought to the Rhinelands during the Napoleonic occupation.

We have emphasized the regional diversity of the German peoples and outlined the extent and characteristics of the politico-cultural divisions of the historic Germany. This diversity has acquired a new significance since 1870 through the emergence of a new social and economic structure and through the persistence of the old semi-independent political units as a loose federation of states that has been dominated by Prussia.

This regional diversity is reflected in movements towards regionalism and federalism. These movements are based on the background of the historical development of the sectors of Germany and upon the modern economic and social development. There is also a great difference in the attitudes and aspirations of the component political units. The chief of these is Prussia. But also of great importance are Bavaria and Saxony. The Rhinelands as a whole have also played a vital role in the development of modern Germany. Finally, the complexity of the federal structure of the Reich and the dominance of Prussia as against the smaller partners, as well as the increasing complexity of the internal organization of the Reich, have given rise to a great deal of administrative devolution within the framework of new regional units. Much thought was given after 1918 to the question of the suppression of the hegemony of Prussia and the reorganization of the component states in a new federal Germany. To these questions of political geography we may now briefly turn.

PRUSSIA (Fig. 55)

The State of Prussia had its nucleus in Brandenburg between the Elbe and the Oder rivers in the Northern Lowland. Brandenburg had its beginnings as a military outpost on the left bank of the Elbe established

by Henry I, king of the Germans and duke of Saxony. This was the Nordmark or, as it was later called, the Altmark. It was not extended eastwards to the lowland of the Havel until the twelfth century, when the Slav fortress of Brannibor was selected as the site of a new German fortress, Brandenburg. Under Albert the Bear, the first of the Ascanian line, who came to power in 1133, the Mittelmark was established, extending east to the Oder. The districts of Priegnitz (Vormark), Ruppin and Uckermark, to the north of it, were incorporated into what became one large political unit of Brandenburg in 1157. Each of these territorial units had its nucleus in a raised platform of land that could be cultivated and settled, and was separated from its neighbours by low, flat lands that were marshy and wooded. (See Fig. 13.) In the fourteenth century the Neumark, a territory beyond the Oder, was added, and this, together with the Uckermark, served as an outpost against Slav Pomerania, just as the districts of Lebus and Sternberg to the south served as outposts against Slav Lusatia. The importance of the territory was evidenced in 1351 by the recognition of its ruler as an elector of the Holy Roman Empire. It remained, however, a poor frontier province. In 1411 the land was passed to Frederick of Hohenzollern when its own ruler became Emperor of the Empire. The Hohenzollerns came from Swabia and the first of them was derisively described as the "toy-maker of Nuremberg". But it was they who built the strength of Brandenburg and its successor, Prussia.

Expansion from the nucleus of Brandenburg under the Hohenzollerns began in the seventeenth century. In 1614 Cleve and Mark on the lower Rhine and Ravensburg in the Weser uplands were annexed. In 1618 East Prussia was added, when Albert of Hohenzollern, the Grand Master of the Order of Teutonic Knights, died without heir, and the land passed to the electors of Brandenburg as next in succession. The electors shortly after assumed the title of Kings *in* Prussia, since the land of East Prussia lay *outside* of the Holy Roman Empire, and the name Prussia was gradually assumed as the title of the Hohenzollern lands.

Brandenburg and East Prussia were gradually linked with the nucleus by the addition of intervening territories. East Pomerania was acquired in 1648, West Prussia and Ermland in 1772, Danzig, Thorn, and Posen in 1793, Swedish Pomerania in 1815. To the southeast, Frederick the Great acquired Silesia by conquest in 1742, and this land was still at that time overwhelmingly Slavic in history, people and culture, though Slavic traits waned before Germanic infiltration during the next generations.

Expansion also took place westwards, though it was more gradual and piecemeal. The ecclesiastical territories of the bishops of Magdeburg, Halberstadt and Minden were added in 1648. East Friesland on the north coast was added in 1744, and the bishoprics of Hildesheim, Münster and

Paderborn in 1803. All these territories west of the Elbe were lost to Napoleon temporarily in 1807 but recovered in 1815. But great changes had been made in this short period. It was then that Prussia formed the two new provinces of Rhineland and Westphalia in the lower Rhinelands within a political framework that had already been established by the French. Finally, the Rhinelands were linked with Brandenburg by the addition of Hanover, Kurhesse, Nassau and Frankfurt in 1866.

It is natural that in appraisals of the modern development of Germany, special attention is always given to the development of Prussia, since it accounts for two-thirds of the area of the population of the pre-war Reich and has had a dominant voice in its policy for a hundred years. The story of the spread of Prussia from its nucleus in Brandenburg in the Northern Lowland, and northeastwards to Prussia, southeastwards to Silesia, and westwards to the Rhinelands, has often been told. But the role of the lesser units receives only minor consideration in these appraisals. We also lack space to do just this, but at any rate we can draw attention to the importance of these units as contributors to the development of modern Germany. The two chief of these are undoubtedly Saxony and Bavaria. The Rhinelands as a whole also play a distinctive role in the development of modern Germany.

SAXONY (Fig. 55)

The State of Saxony is the most densely populated province of Germany with 347 persons to the square kilometre in 1939. It is a poor land with a rigorous climate and poor soils, that were thickly wooded before man's appearance. In the Erzgebirge today there are densities of 92 persons per square kilometre in the higher altitudes between 900 and 700 metres, 130 to 90 between 700 and 400 metres, and 600 to 200 below the 400-metre contour. Settlers were first drawn here by the attractions of its silver and secondarily of tin, and it was the descendants of the miners who, in spite of the abandonment of these workings, continued to live here by pursuing other occupations not connected with the soil. Here is an outstanding example of the emergence of a numerous population that has found subsistence through its diligence and enterprise in an environment unfavourable for the growth of foods in adequate quantities. The whole territory has become a hive of modern industry and the products of its farms only supply a small fraction of its food requirements. It depended throughout the first three-quarters of the century on the running water of its many streams. In the last fifty years or more it has profited by the proximity of coal- and lignite-fields in the lowland to the north. It derives electricity from the thermal plants on these fields as well as from its own hydro-electric sources.

The Slav population settled in the first millennium in the open loess areas on the northern border of the wooded highlands. We hear of a Sorab (Slav) duchy in the seventh century that reached west to the Saale. The Germans made their first entrance in the area east of the Elbe and the Saale under Charles the Great in 805 when the *limes sorabicus* was established from the Danube at Regensburg to the Saale. This was a series of outposts rather than a zone of fortifications, that joined up with the *limes saxonicus* to the north. The forested highlands of the periphery of the Bohemian Massif were avoided by Romans, Celts and Sorabs. The two chief routeways lay at its extremities, one through the Moravian Gate and the other through the Thuringian Highlands up the Elbe and Saale. Nevertheless, there is evidence that routeways between were early used by the Slavs.

German penetration was slow and continued from the tenth to the thirteenth centuries. Marches were established in the tenth century, with centres at Meissen on the Elbe, Merseburg and Zeitz. These three centres became bishoprics in 962. All these lands were much subdivided among conflicting German lords and disputed by the Slavs. Out of this welter there emerged one strong ruler towards the end of the eleventh century in one Conrad the Great, the first of the long dynasty of the Wettins, with which the fate of Saxony has long been associated. In 1123 the three marches were combined under Conrad into the margrave of Meissen (on Elbe) and in 1136 the margrave of Lusatia was added. Close settlement by Germans from Thuringia and Franconia took place in the following centuries. Cistercians also participated in this movement of colonization. The *Grundherren* early relinquished their rights and their lands were subdivided among the peasant communities or governed by a representative, a *Meier*, to whom the peasant owed his feudal dues. The peasant was never far removed from the prince since the territories were much subdivided. The Slav language did not disappear until the fifteenth century.

Mining of silver began in the Erzgebirge in the second half of the twelfth century, and population grew prodigiously and the Wettinian rulers became rich through the wealth of the mines. In the fourteenth century Saxony emerged from the chaos of divisions, its name being derived from one of the small lords of Thuringia who called himself the Landgrave of Saxony after the Saxon lands to the north. The Wettinians were Margraves of Lusatia, Thuringia, and the county palatine of Saxony (at Eisenach), and lords of Osterland (Leipzig) and Pleissnerland. These territories extended from the Harz to the summits of the Erzgebirge, and from the Werra to the Oder rivers. In the fifteenth century the Wettinian dukes of this great territory became one of the seven electors of the Emperor of the Holy Roman Empire.

The University of Leipzig was established in 1409 and in 1502 a second university was founded at Wittenberg as a Protestant university, since Leipzig clung to the Catholic faith. It was in 1485 that the Wettin line divided into the Ernests in Thuringia and the Alberts in Saxony. It was the latter who founded the University of Wittenberg. Luther lived and worked at this university. His criticisms of the Church resulted in unexpected riots among the peasants and artisans in many parts of Saxony against the corruptions of the Church. He endeavoured to suppress these uprisings by maintaining the rights and privileges as well as the responsibilities of the nobility. Anarchy came in 1520 when attempts were made to break away entirely from both secular and ecclesiastical authority and to establish the "kingdom of Christ". Luther spoke from pulpits throughout the land of Saxony against these revolts and their aims. These troubles settled down in 1524–5 and were concluded by Luther's exhortation to both people and prince in his *Ermahnung zum Frieden.* This movement had its parallel across the Erzgebirge in the Hussite movement of Bohemia.

The extensive Wettinian lands were divided by a dynastic division into the lands of the Alberts in Saxony and the Ernests in Thuringia. The former espoused the cause of the Emperor in the wars of religion and also enjoyed great wealth and power from the metal-workings that reached their peak in the later Middle Ages. In the mid-sixteenth century the Saxon territories were expanded by the addition of the episcopal lands of Merseburg, Zeitz and Meissen, and the secular lands of the Vogtland.

The mining of metals declined and petered out during the sixteenth century. The first steam-driven machine was brought to Zwickau in 1820. Production of coal reached the modest figure of 1 million tons in 1845 and the first short railways in the area were designed to link the fields with the towns. Coal production reached 2 million tons in 1858 and increased very slowly to 4·8 million tons in 1900 and 3·4 millions in 1938. This great hive of industry did not grow on the basis of local coal. It depended right down to the last quarter of the nineteenth century on the running water of its many streams. Steam power was installed in factories to displace the water-wheel and one may still see the isolated factory alongside the stream with the coal-fed power plant alongside it. Still more recently hydro-electricity and thermal electricity have come into use. Most of the coal mines were small concerns and there was no effective integration until after World War I. The number of miners in 1870 was a fifth of those employed in the Ruhr and one-tenth in 1900. Moreover, the miners are recruited mainly from the local population and many of them continue to hold some farmland; they are not entirely divorced from the soil. The total population of Saxony reached 1·2 millions in 1815 and rose slowly to 1·5 millions in 1871, then increased

rapidly to 4·8 millions in 1914, and 5·2 millions in 1939. This is a highly industrialized land, that employs both male and female labour. Twenty-eight per cent of its actively employed persons are engaged in the manufacture of textiles, 15 per cent in engineering industries (that are mainly highly skilled and refined fabricating industries) and 23 per cent in commerce (an unusually high proportion).

The progressive and "liberal" views of its people, as reflected in the wars of religion in the early sixteenth century, recur in social and political developments in the late nineteenth century. There is here a long tradition of co-operation and mutual aid. This is evidenced in the small co-operative enterprises of the medieval miners, and in the groups known as *Knappschaften* that developed among the workers in the Zwickau district in the sixteenth century. Miners' associations developed in the 1860s and two men, Bebel and Liebknecht, founded in 1874 the *Verband Sächsischer Berg- und Hüttenarbeiter*. Bismarck attempted to prevent such organizations and strikes in 1878, but this did not stop strikes of the miners in 1870 and 1889. Bebel and Liebknecht, who suffered imprisonment for their cause, laid the foundations of German socialism. Here, too, was established a workers' educational society, *Arbeiterbildungsverein*, in the towns, that was a fertile medium for the spread of socialistic ideas. The Social Democratic Party was founded in 1874 and its paper *Vorwärts* was founded in 1875. The party drew much of its philosophy from the teaching of Marx, but rejected the methods of revolution and of internationalism and concentrated its attentions on the peculiar social needs of the German people. After this period of incubation, as it were, among the progressive workers of Saxony, the movement spread throughout the Reich, and found its adherents especially in the Rhinelands and above all in the lower Rhinelands, where an urban proletariat rapidly accumulated after 1870.

BAVARIA (Fig. 55)

The modern State of Bavaria, second in size and numerical strength to Prussia, with a long and independent political tradition, is a seat of conservatism, just as Saxony has been a seat of liberalism. This is based in large measure on the character of the livelihood of these peoples in a different environment.

There is a sharp cleavage in modern Bavaria between the northern territories of old Franconia north of the Danube, that are Protestant in faith, with many small towns and a highly developed industry, and open to Latin influence from the Rhineland; and the southern section in old Bavaria, dominantly agricultural with a conservative peasantry, that is staunchly Catholic and far removed from outside influences. The density of population of 108 persons per square kilometre is one of the lowest

in the Reich. Farms are large in Upper and Lower Bavaria, where holdings of 20 to 100 hectares make up 40 per cent of the total, as compared with only 4 per cent in the Neckar lands of Württemberg and the Black Forest in Baden. Bavaria is also a land of numerous small towns, to which Munich, the overgrown capital, and Nuremberg, a half-million city, are exceptions. Indeed, the latter characterizes the country by the dominance of small skilled industries and small plants with personal relations between patron and artisan. In the typical small country towns there is a remarkable balance of occupation and opinion. There is very little aristocracy of wealth or station. Farmers, craftsmen and small traders, clerics and teachers intermingle among what is predominantly a *Klein Bürgertum*. Moreover, there has been very little immigration from outside, for Bavaria has had little to offer in the way of employment. In fact, its own high birth rate has not only maintained its growth, but has supplied considerable numbers of emigrants.

The first seats of settlement in the south were in the warm and fertile lands of the Neckar and the Main valleys. It was to protect these lands that the Romans erected the *limes* from near Coblenz, along the east side of the Neckar, along the Altmuhl river, and thence to the Danube near Regensburg. This was designed to keep out the marauders from the *Hercynia Silva* in inner Germany. These fortifications, partly built of stone (and known to the Germans as the *Teufelsmauer*, the devil's wall), were strengthened by forts (*castellae*) and on them too were trading posts (*canabae*). Farms lay behind them (*villae*) in what was described as the *Agri Decumates*. Routes ran through this country to the trading posts on the frontier where goods were exchanged with the Slavs, who brought such articles as amber, honey and fur.

The German tribes invaded these German lands by crossing the fortifications. The Swabians and the Alemmani invaded and settled the southwest in areas that have been shown on Fig. 54 (p. 324). In the fifth century the folk known as the *Baioarii*, meaning the inhabitants of Bohemia, left that land and passed down the Naab lowland to Regensburg and installed themselves on the plateau west of Regensburg on open loess land. Their area of settlement is shown in Fig. 54. From this area they rapidly spread a thin veneer of settlement during the eighth century to Austria, Styria, Carinthia, and over much of the Alps. In the eighth century they were conquered by the Franks and in 788 they were incorporated in the Frankish Empire as the dukedom of Bavaria. Churches were founded and spread eastwards. St. Boniface founded the bishoprics of Passau, Regensburg, Freising and Salzburg, and consecrated many monasteries in the eighth century. The Slavs had not occupied the Bavarian Plateau, for their westward spread had been held up by the forested highlands of the Bohemian Forest and the Franconian Jura.

Marches were created against them and against the influx of nomadic marauders up the Danube valley. The Ostmark was founded in the ninth century and Vienna was founded in 1107 as the last in a series of town foundations along the line of the Danube. The Nordgau was created as a *mark* north of Regensburg between the Bohemian Forest and the Franconian Jura in 955, but after a few years it was annexed to Bavaria and became an integral part of it. After the defeat of the Magyars in 955 Bavaria extended eastwards and soon reached from the southern Tyrol to the Fichtelgebirge, between the rivers Lech and Enns, and from the Bohemian Forest to the Franconian Jura.

In the sixteenth century, Bavaria was a weak state, for the dukes of the Wittelbachs had little control over the many small authorities in their lands. They lost their electoral rights in the fourteenth century and yielded the Tyrol to the Habsburgs. But further disintegration was checked by the adoption of the law of primogeniture in 1506. The land was hopelessly divided by the numerous small authorities of lords and towns. Renewed strength came, however, in the seventeenth and eighteenth centuries with the Counter-Reformation, for Bavaria remained Catholic. The University of Ingolstadt was founded in 1472 and it became a pillar of Roman Catholicism and a citadel of the Jesuits. The latter were leaders in the Counter-Reformation that was strong in Bavaria and is reflected in the great activity of church-building in the Baroque style in this era. Revival of political power accrued to the dukes of Bavaria, who once again became electors, and received from the Emperor the territories of Oberpfalz and Kurpfalz in 1628. The Thirty Years' War spelled devastation. The armies of Gustavus Adolphus ravaged the land. It again became a battlefield in the eighteenth century. Order was restored and reforms introduced by Maximilian-Joseph (1745–77) who codified the Bavarian law on the basis of Roman law. He also turned his attention to the reclamation of the bogs along the Danube, as the Prussian kings were doing at the same time in the valleys of Brandenburg.

Then came the Napoleonic wars. Under the Napoleonic regime, in 1803 Bavaria was given the bishoprics of Würzburg, Bamberg, Augsburg, Freising and Passau, and fifteen free cities. In 1805 Augsburg, the Tyrol and Vorarlberg were added and in January 1806 Napoleon appointed the Elector Maximilian-Joseph as *King*. The new kingdom entered the Confederation of the Rhine in 1806. Salzburg and the Innviertel were added from Austria in 1810 and the territories of Bayreuth, Ansbach and Aschaffenburg to the north were added in exchange for the Tyrol and Vorarlberg that passed to Austria. The interesting thing here is that the territories that are juggled retain their outline; they persist as geographical units though passed from one political entity to another.

The real ruler in the French kingdom of Bavaria was not the king but his chief official, a Frenchman called Montgelas, the Bavarian Stern. He reorganized the political divisions, on the pattern of those of Revolutionary France. The old names were abolished and in place of all the complicated territories several major divisions were formed comparable with the French Departments with the names of Nordbayern, Südbayern, Westbayern and Ostbayern, and these were in turn divided into fifteen *Kreise*, comparable in function (and name) with the French *arrondissements*. Local autonomies were abolished, and government centralized in the capital at Munich. The old town militias were abolished and in their place a State army was organized. Education was also reorganized. The Constitution of 1808 was modelled on that of France. It introduced social equality, political liberty, religious freedom, the elimination of the last traces of feudal dues, and the secularization of ecclesiastical lands and obligations. Confiscation of religious properties and certain other measures were resented by a conservative peasantry who rose in revolt. In 1815 French influence was eliminated, but the reforms remained. In this short period, the spatial organization of Bavaria had suffered profound changes in the arrangement and organization of its political divisions as well as in its social structure. The limits of the kingdom in 1815 are shown in Fig. 56 (p. 335).

Bavaria has suffered no profound economic or social change in the modern period. But it has been very conscious of its political independence, jealous of its rights, and conservative in its attitudes. The land has remained dominantly agricultural. Its people are predominantly farmers. New industries, however, were introduced that sought to strengthen its economic foundations. Under Montgelas and later, industries such as leather-making, sugar manufacture (from the newly introduced sugar beet), metal-working, brewing and the making of textiles (as at Augsburg, where they were very old-established) were developed in Munich and Nuremberg and many of the lesser towns. These towns also have industries closely allied to their immediate market areas. Bavaria entered, though tardily, the customs union of the German states under Prussian leadership in 1835. Interest was directed to hydro-electric development in the Alps in the 'nineties. The farm holdings remained in their outline much as they had for centuries and the three-year rotation is still generally practised, modified by the introduction of new crops such as beet, potatoes, and grasses, with increased specialization in recent decades on dairying. The population increased very slowly in the nineteenth century. In 1806 it reached 3 millions, and in 1910, 7 millions, and 8·3 millions in 1939.

Bavaria has two distinct regional groups, as we suggested at the outset, the north and the south—Franconia in the Main basin, acquired in

1815, and old Bavaria. Slow to participate in the changes of the growing Reich under Prussia, and, indeed, always jealous of the power of Prussia, Bavaria entered the Reich in 1871 with the reservation that she should control her own army, railway and postal services. Naturally, Bavaria was also violently opposed to Bismarck's religious policy. Similarly its conservatism caused it to be opposed to the Weimar Republic and the separatist movement was strong. Yet it was here, in its capital, that the Nazi movement was nurtured. This fact is to be associated with the prevalence of reactionary governments in the inter-war period, while the monarchical tradition of Bavaria became increasingly opposed to the liberal trend of the Weimar Republic.

THE RHINELANDS

The Rhine and the Danube formed the frontier of the Roman Empire, with the exception of the area in the southwest that lay behind the fortifications of the *limes*. Behind these fortifications lay the basin of the Neckar and the western section of the Bavarian Plateau. Bishoprics were established on the western banks of the Rhine-Danube on the site of preceding Roman settlements, as bases for the Christianization of the lands to the east. This was the medieval *Pfaffengasse*, the route of the priests. Here was the heart of the Frankish Empire and of the Merovingian and Carolingian Empires. Here, too, medieval culture in the German lands reached its highest florescence. Here, for instance, some of the earliest universities in Europe were established, such as that at Cologne, that drew students from a wide area in northwestern Europe. Here, too, mechanical printing had its beginnings. Gutenberg produced the first printed works at Mainz and printed the first Bible. The first work to be printed in French came from a press in Cologne in the 1460s. Erasmus moved from Rotterdam to Basel in 1514 where he carried on his teaching. Luther was arraigned before the Imperial Diet at Worms in 1521, although his teachings and his influence began, and were most intimately concerned, with events in the University of Wittenberg and the land of Saxony. The Romantic movement seized the Rhinelands and found expression through many of the *savants* of the time. The *Aufklärung* of the eighteenth century, with its greatest thinker in Voltaire, found deep roots in the Rhinelands. Especially in the electoral courts did one find the splendour of France assiduously sought after and imitated. The Palatine Elector shifted his capital from Heidelberg to Mannheim, the archbishop of Trier built his new palatial residence at Coblenz, and the archbishops of Cologne built sumptuous residences at Bonn and Brühl, a village a few miles southwest of Cologne. There was a veritable diffusion of French culture. French was the language of the court and

French players performed for court and nobility. "Mobilier et mode, cuisine et philosophie" were affected by France. Goethe, it should be recalled, was born of a simple burgher's family of Frankfurt and was educated at Strasbourg. Heine, a disciple of Goethe, was born at Düsseldorf and educated at the State University of Bonn, though he soon left for the free atmosphere of Paris. The love of liberty of such men was suppressed by Prussianism that practised and fostered a militant and overconscious nationalism that sought to drive out foreign, and particularly French, influences in thought, ways, and speech. This was the Rhenish *Anschluss*. To this day, however, the German Rhinelands have remained staunchly Roman Catholic lands of small land-owning peasantry, lands of a *Klein Bürgertum*. Charitable organizations within the Church applied themselves in the nineteenth century to social welfare and the relief of poverty. Thus there emerged the organized strength of the Catholic Centre and of the Christian Socialist parties.

Political and religious schism, however, early divided these lands. The Low Countries split on the religious issue, for it was primarily in the cause of religious freedom that the United Provinces fought for their independence of the Holy Roman Empire, whereas the southern portion of the Netherlands—the Spanish Netherlands—remained Roman Catholic. Moreover, after 1648 the Rhine became a barrier in that section where France reached the Rhine in Alsace. Here Strasbourg was made into a great fortress by Vauban, other forts were erected, and Mannheim was razed to the ground on several occasions. French control during the Napoleonic era spread throughout the Rhinelands. From Alsace to the United Provinces the frontier impinged on the "feudal menagery" of the Rhinelands, in which there were nearly one hundred separate states with their own courts, their own fiscal systems and tariff barriers, and the same general poverty and inequality among their peoples.

The Rhinelands were more effectively united under the political sway of the Napoleonic era. The Rhenish Convention voted for union with France in 1793 and the Rhine in its entirety below Basel became the eastern frontier of France. French rulers were installed in the German provinces throughout the occupied Rhinelands. Order was restored, peace maintained, and much attention was paid to the reorganization of political divisions, and the economic development of the occupied territories by the construction of canals, roads and the establishment of industries. The French Government of the Confederation of the Rhine effected rapid changes in these lands. The political pattern was reorganized and administration centralized. The Grand Duchy of Berg, for example, was formed by a regrouping of several territories—the duchy of Berg, the duchies of Cleve and Mark, and a part of the bishopric of Münster in the upper Ems valley. This area contained about one million

inhabitants. It was divided into four new departments called Rhine, Sieg, Ruhr and Ems. The administration was centralized with German prefects and sub-prefects. This system was introduced elsewhere in these occupied Rhinelands and was adopted by Hardenberg in the reorganization of these lands when they were absorbed into the Prussian State to form the two new provinces of Rheinland and Westfalen. In the same French era, feudalism was abolished, the *code civil* was introduced, and internal tariffs were wiped out.

At the same time the German people began to feel and develop their common nationality, as both an anti-Napoleonic and an anti-French movement. This was intensified after 1815. French words were driven from the German language, and there was a reversion from the influences of French Baroque art and architecture, such as had permeated the lands, especially the courts and the Church, in the eighteenth century.

The Rhine has been both a link and a barrier. The valley was followed by overland routes, long before the river was used. Prehistoric man used the routeways from across the Alps to the North Sea for amber, and natural overland routes ran along the *Börde* and these converged on the Rhine. A period of commercial prosperity under the Romans was followed by a thousand years of inactivity. A resumption of long-distance trade developed in the thirteenth century, with the opening of the route across the Devils Bridge at the head of the Reiss valley to the St. Gotthard Pass (1230). In the fourteenth century the fairs of Frankfurt acquired international fame for the sale of silks, spices, glass wares of the Orient and Italy; tin and lead from England; the fish of the Low Countries; and the cloths of Brabant and Flanders. Cologne also prospered. This trade declined after the discovery of the New World, but timber from the Black Forest was floated down from Speyer to Cologne, and salted fish moved upstream from Holland.

Gradually the river came to be preferred to the road. The merchants of Strasbourg at the time of the Hansas monopolized river-borne trade downstream to Cologne. At that time it took six to eight days for a loaded barge to sail from Strasbourg to Cologne, and a month or more to come upstream over the same course. There were numerous obstacles to navigation and upstream haulage was effected by horses. There were also numerous dues to be paid *en route*. Political disintegration of the lands on the river led to the use of the road rather than of the river. In the Middle Ages the Flemish ports were used as exits to the North Sea rather than the mouths of the Rhine. In the fifteenth century the main commercial thoroughfare quit the Rhine at Cologne and crossed country to Antwerp at the mouth of the Scheldt. In the eighteenth century this channel of trade shifted from Antwerp to Amsterdam. The lower Rhine, in other words, was not greatly used by traffic.

The Rhine began to function as a barrier from the seventeenth century. In 1814 Prussia reached the river. The east–west links in the Rhinelands were now dwarfed by the north–south links that developed with the improvement of the Rhine as a navigable waterway and with the unification of the German lands. The river was not of great significance as a waterway because of the shallows, rapids, and rocks on its course, and because of the numerous toll stations that impeded traffic. It was not until after the 'seventies that the great process of river improvement, *Strombau*, began. The German-Swiss Rhine was equipped for electricity undertakings at the valley constrictions. The Alsace-Baden sector was difficult to harness because of its rapid and shifting course, and the Canal d'Alsace on the west bank was built to bring Basel into direct touch with the main head of navigation at Strasbourg. The Palatinate sector was regularized between 1897 and 1913 with a depth of 2 m. 50, and seventeen meanders were cut and old courses abandoned. The "heroic Rhine" between Bingen and Bonn through the Rhine Massiff had to be cleared of rocks and narrows to a standard depth of 2 m. 80. Below Bonn more meanders were cut and a single channel was made with a depth of 3 m. 40. Rotterdam lies on the Lek, the main exit of the Rhine, the other less navigable exits being the Waal and the Meuse. The river was thus made navigable for large barges from Rotterdam to Strasbourg.

In 1815, the river was declared free to the vessels of all nations. This was extended to the Dutch sector in 1830 and to the whole river from Basel in 1868. The economic life of the river became international. Iron and coal became its main cargoes after 1850 and especially after 1870. Since 1900 potash has been sent downstream, and grain and oil have come in increasing quantities upstream, especially to the Ruhr. The river has been steadily improved. Barges with a capacity of 1,500 tons can reach Strasbourg. A great engineering feat was achieved that helped forge together the Rhinelands, and enabled a single channel to emerge in a river that had hitherto often had several entirely distinct and separate courses. Cities that formerly lay back from the river and avoided its dangers now sought river frontages for extension of port facilities. This vast traffic is catered for not only by the river but also by the canals that are connected with it on both its banks.

The nineteenth century witnessed the gradual economic and cultural unification of the German Reich. This was the age of the formation of the Zollverein and the first phase of the economic development of Germany. The real period of development came after 1870. This was the era of the *Strombau*, the improvement of the navigable waterways and the construction of canals. It was above all the era of the great Industrial Magnates. This was the *Gründerzeit*, the age of the founders. These founders of modern Germany were Friedrich Krupps (1787–1826) and

his son Alfred (1812–87), Friedrich-Alfred (1854–1902), August Thyssen (1842–1926), Hugo Stinnes (1870–1926) and Emil Kirdorf (1847–1926).

The Rhinelands have become the arsenal of German economic strength. These lands, however, have two cardinal disadvantages. First, they are dominantly Catholic, and, second, they are situated on the west of Germany next to France, and thus lie open to attack from the west. The latter undoubtedly stimulated the development of industry in the middle Elbe basin during World War I and after, since this region enjoyed the advantage of a central position in the heart of the Reich. But it is now absorbed into the sphere of Russian occupation and is only a few miles from the Czechoslovak frontier, and furthermore, since 1945, the whole area has been subjected to the spread of Russian communistic ideology. The Catholic and industrial areas of the Rhinelands, on the other hand, today constitute the new republic of West Germany.

MODERN REGIONALISM

The political structure of Germany has been fundamentally changed since 1945. Let us here concentrate our attention on the regional question in the pre-war Germany.[1]

The problem of regionalism in Germany is far more complicated than it is in either France or Britain, for the Reich had essentially a cumbrous federal structure that was dominated by Prussia. The problem is to establish a group of states within the framework of a single federation in which no single state shall enjoy a dominating position. This would mean the abolition of Prussia, that contains nearly two-thirds of the area and the population of the pre-war Reich, and raising its component provinces to the status of the other component states. It has long been agreed in Germany that such reorganization is needed. Disagreement has mainly concerned the status of Prussia within such a federation. The Allied occupation has gone a long way towards the solution of this problem, for Prussia has been abolished and new federal states have been established.

There is, however, another side to this problem. It is that of dividing the Reich into provinces approximately equal in population and compact in area, so as to serve as effective units of government within themselves and in a federal government. In 1933 there were seventeen states in the Reich. Of these Prussia had fourteen provinces, if we include the city of Berlin and the small outlying province of Hohenzollern that is buried in the heart of Württemberg. Excluding these two, each of the provinces of Prussia had an average area of 25,000 sq. km. and a population of 3

[1] See R. E. Dickinson, *Regions of Germany*, London, 1945, and A. Brecht, *Federalism and Regionalism in Germany*, Oxford, 1945.

millions. The remaining states ranged from Bavaria with 78,000 sq. km. and 7·8 million inhabitants, to Schaumburg-Lippe with 340 sq. km. and 50,000 inhabitants (1933). Also in this list were the free cities of Hamburg, Bremen and Lübeck. Some of these states had many outlying, detached segments buried in the midst of lands of other states. All these units have long enjoyed the full apparatus of independent governments, and formed the basis of the federal Reich in 1871. Fig. 57 (p. 368).

Various changes were introduced in this pattern under the Nazis in the period from 1933 to 1939 and then during World War II. The new state of Mecklenburg was formed by the combination of Mecklenburg-Schwerin and Mecklenburg-Strelitz in 1934, and Lübeck was incorporated in the province of Schleswig-Holstein in 1937. The single unit of Hansastadt Hamburg was created in 1937. There were also changes in the provinces of Prussia. Lower Silesia and Upper Silesia were combined to form one province in 1938. The province of Saxony was divided into the two provinces of Magdeburg and Halle-Merseburg in 1944, each being co-extensive with the government district (*Regierungsbezirk*) of that name. Hesse-Nassau was divided into the two provinces of Kurhessen (the government district of Kassel) and Nassau (the government district of Wiesbaden) in 1944. The county of Schmalkalden was also transferred to the Erfurt district.

The economic and social changes in Germany since 1871 brought new associations and circulations that cut right across many of the state boundaries and made them sheer anachronisms, inconvenient and often inefficient and expensive to maintain. They could not be used as units for federal administration. And many state functions could not be carried out in the smaller states without the aid of their larger neighbours. Citizens often had to travel many hours to their state capital, although the capital of a neighbouring state was close to them. The maintenance of the parliamentary machinery was also very expensive in a small state, that was often smaller in area and population than an English county.

It was for these reasons that new and more rational consolidated divisions were established for many aspects of Reich-wide government and for regional trade and professional organizations. This problem was inevitably associated with the political problem and received much attention in the preparation of the Weimar constitution. It was also given a great deal of attention in the period from 1919 to 1933 by individual and public authorities. The outstanding contribution was that of the States' Conference held in 1928. A number of important changes were actually made in the political pattern in order to eliminate some of its absurdities. This work was continued by the Nazis. They created one single authority to cover the whole of the Hamburg urban area, calling it

Hansastadt Hamburg, and eliminated many small territories between Lübeck and Hamburg, as well as the independence of the city of Lübeck that was joined with Mecklenburg. They introduced many changes in the regional organization which will be noted below. The occupying Powers of the post-war Germany have carried the process further.

Among the schemes that were put forward in the 'twenties some were theoretical, prepared to serve the plans of the political philosophers who were more concerned with the constitutional aspects of the problem. Others were based upon single sets of criteria for the division of the whole country, or upon an exhaustive analysis of the regional integration of one portion of the Reich—such, for example, as the meaning and extent of Lower Saxony. Some schemes adhered closely to the political units, though eliminating the outliers and creating compact entities. Others created entirely new units, irrespective of political boundaries, by considering such criteria as traffic flows, tribal groups (*Volksstämme*), and cultural associations.

Professor Hugo Preuss prepared a new constitution for the Weimar Republic in November 1918. This was to be a federal state with sixteen Free States or *Länder* of roughly equal size, so that each had at least a population of one million inhabitants. The scheme failed because of the opposition of both the existing state governments and especially of Prussia. The question of the *Neugliederung* raised so many problems that it was shelved. The National Assembly, however, encouraged further research on the matter, and established to that end a *Zentralstelle für Gliederung des Reiches* in 1920, although it did little work and was abolished in 1929. The one important result was the creation of the unified state of Thuringia out of a notorious agglomeration of territorial fragments in 1920.

Other schemes were put forward. The Reich government called a conference of the leading ministers of all states in 1928. This conference declared itself in favour of the abolition of the dualism of *Reich* and *Land* and the formation of twenty-one *Länder*, of equal size and population, with the provinces of Prussia standing as states on the same footing as the rest. Another scheme was put forward by the *Bund der Erneuerung des Reichs*, founded by Reichschanzellor Luther in 1928. In this scheme Prussia was to remain a single unit together with Thuringia, Mecklenburg, Hesse, and the two cities of Hamburg and Bremen. The other small *Länder* were to be absorbed into the neighbouring Prussian division to form five new divisions and in addition there were to be four provinces outside this *Reichsland*—namely, Saxony, Bavaria, Baden and Württemberg—each of which was to have a considerable measure of independence.

It is appropriate to mention here the work of the late Professor Walther

Vogel who in 1932, in summing up the literature on the subject, argued that in a new division the existing units should be adhered to as far as practicable, and that area studies be made in order to determine exactly the distribution of the relevant considerations, such as population, traffic, economic activities, social patterns and historical development. Each division he considered should be large enough in population to lead a balanced economic and social life. He lent support to the view that the cities of Hamburg, Bremen and Berlin should be independent units.

Since 1871 there has been much administrative devolution within the Reich and regional divisions have been adopted for many *ad hoc* purposes. Many of these were organized from Berlin and often cut right across state boundaries. This applied to finance, administration, social administration, control of waterways, education, and so on. This process established an administrative system directed from Berlin, parallel to, but independent of, the *Länder*, and it undermined and weakened the authority of the latter. As Vogel remarked, in respect of taxation, "Reich and Land are like a married couple, when the husband earns the money, the wife pays it out, but they do not tell each other what the income is and what the money is used for".

Among the numerous *ad hoc* divisions of the Reich several were of particular importance in the internal life and organization of the country. Among these we may mention the regional associations of chambers of commerce (*Wirtschaftskammer*). There were seventeen major provincial groupings that catered to the needs of all the industrial and trade concerns as well as for all employed persons. These provinces were East Prussia, Silesia, Brandenburg, Pomerania, Nordmark, Bremen, Lower Saxony, Düsseldorf (*Regierungsbezirk*), Westphalia and Lippe, Hesse, Rhineland, Central Germany (*Mitteldeutschland*), Saxony, Bavaria, Karlsruhe, Würrtemberg and *Regierungsbezirk* Sigmaringen, and the Palatinate. Within this provincial framework there were smaller component units (*Industrie- und Handelskammern*) that embraced all employed persons and cared for the interest of industry and trade. There were about one hundred such districts. Another group of important districts were the divisions of the Ministry of Labour, that handled questions of unemployment and insurance and general labour questions in each area. There were about three hundred and fifty small districts, that were grouped into thirteen major provinces as follows—East Prussia, Silesia, Brandenburg, Pomerania, Nordmark (Schleswig-Holstein, Hamburg, Lübeck, Mecklenburg, part of Oldenburg and the districts of Lower Saxony on the south bank of the Elbe opposite Hamburg), Lower Saxony (most of Hanover, Brunswick, Bremen, Oldenburg, Schaumburg, Lippe), Westphalia, Rhineland, Hesse, Central Germany, Saxony, Bavaria and Southwest Germany. Another division for the settlement of

trade and labour disputes (*Treuhänder der Arbeit*) was organized under the Nazi regime. Finally, mention should be made of the nation-wide division that has been used for some time for the general presentation of census material (*Wirtschaftsgebiete*). These provinces are—East Prussia, Pomerania, Berlin-Brandenburg, Silesia, Saxony, Central Germany (Province Saxony, Anhalt, Thuringia), Bavaria (with the Palatinate), North Elbe (Hamburg and Schleswig-Holstein), Lower Saxony, Rhineland-Westphalia, Hesse (Hesse-Nassau and the province of Hesse) and the Southwest. (Maps of these divisions are in the two works footnoted on p. 361.)

Many exhaustive studies have been made of the space relationships of each of these major provinces. There is a formidable literature on the subject of trade flows (*Verflechtung*). The Reich has been divided into homogeneous units on the basis of selected criteria in such a way as to provide areas that they considered would be suitable for a reorganized system of regional government. One of the more serious efforts was that of Professor Erwin Scheu (1927). (See our *Regions of Germany*.) He recognized twenty-two smaller districts and nine major provinces. His delimitation was based upon a careful study of the distribution of population, agriculture, industry and commerce, and his boundaries were drawn so as to correspond with the existing administrative boundaries. Another public administrator, A. Weitzel, put forward in 1928 a general division, based upon a detailed study of the sphere of influence of the city of Frankfurt-on-Main, and he defined his regions on this basis so as to form "the economic interests of the separate sections of the Reich, their geographical contiguity, their social structure, and cultural unity". Other such schemes took account of traffic flows, power consumption, and others were based on cultural criteria (*Stammeszusammehänge*).

The process of *ad hoc* division continued to be elaborated and a big step forward was taken under the Nazis. In 1936, the Reich was divided into twenty-three planning regions. These generally followed the existing frameworks, but the *Ruhrsiedlungsverband*, Berlin, and Hamburg, were separate units. Another unit of regional organization was established by the Nazis for the Party organization. This was largely based on the existing electoral divisions and the new districts were called *Gäue*. These were so defined as to be approximately equal in size, each with a well-developed sense of unity and with a dominant central headquarters.

The National Defence Regions differed from both the Party and the Planning Regions, although the National Defence and Party Regions became co-extensive in 1942. The former were described as economic regions (*Wirtschaftsbezirke*) and coincided with the Planning Regions or included two or more of them. To these new economic regions were allotted the regional offices for economics, food, and forests, and new

functions were subsequently transferred to them. These regions also became the units for the organization of commerce and industry. Thus, party regions, defence regions, and economic regions, became for the most part co-extensive, although they were different from the States and the provinces. Under this war-time organization, the political independence of the states was eliminated. They became administrative provinces directly controlled from Berlin, and the scheme was extended to the annexed territories. In each province the Party leader was in charge of the national administration, as well as of the home-rule administration of the province. But the basic problem of territorial reorganization of the German states remained largely unsolved.

CHAPTER 15

POTSDAM GERMANY, 1945–52

THE PURPOSE of the preceding chapters has been to portray the economic and political geography of the pre-war Germany viewed in the light of historical perspective. We may now evaluate on this background, some of the outstanding current problems of the new Germany, or rather, of the two new German Republics. Before doing so, however, let us first briefly review the trend of events during the period of occupation by the Allied Powers from 1945 to 1950.

The pre-war Germany is divided. There are the four zones of occupation, the jointly occupied area of Berlin, and the "separated area" beyond the Oder and the Neisse rivers. The last areas were handed temporarily to Poland in 1945, but they have been permanently incorporated into Poland, with the support of this *fait accompli* by the Soviet Union, but with the strongest disapproval of the Western Powers. The remaining fragment of the Upper Silesian coalfield has gone to Poland, so that the whole industrial complex is now in its territory. The Saar coalfield and its associated industries once again have been incorporated into the customs union of France, although the peoples, German in speech and traditions, retain an autonomous government. Apart from very minor adjustments of a few square miles, there have been no changes of the western frontiers.

ALLIED OCCUPATION, 1945–52

The Potsdam Agreement did not provide for immediate establishment of a single central German government, but did agree on the formation of esssential central administrative departments for purposes of finance, transport, foreign trade, and industry, under the authority of the Allied Control Council. These decisions were not carried out. The Powers set up their own administrations in their own zones which in effect developed on different lines and stagnated in the water-tight compartments of the new and arbitrary zonal boundaries. Britain controlled the industrial northwest and the part that had been most severely damaged. This area stood in greatest need of foreign trade and outside aid, so that Britain was hard hit by this arrangement of separate zones. The victor had to maintain the vanquished. The economic merger of the British and American Zones was begun in the autumn of 1946 and



FIG. 57—POLITICAL DIVISIONS OF POST-WAR GERMANY (scale 1 : 6 m.)
[*For key see next page*

Bremen and Wesermünde now form a separate *Land*, and the surrounding area of the Enclave has passed to Niedersachsen.

formally consummated on January 1, 1947. In February, 1948, there emerged a union of the British and American Zones for purposes of economic, financial, and legal administration, with appropriate German legislative bodies. The next step was towards the formation of a single West German State, together with the French Zone. The Basic Law of a new constitution was worked out by a German "Constituent Assembly" in 1948, and came into force in August, 1949, when the Federal Diet was elected and met in Bonn. At the same time authority was passed from the military government to an Allied High Commission as the supreme authority in September, 1949. Meantime, the Soviet Zone was being organized on the basis of separate States and a central authority. The direct proclamations of the Soviet Military Administration throughout the whole zone did much to effect a more rapid recovery than in the Western Zones. The government was centralized through an Economic Commission (August, 1947) and by the end of 1948 an Eastern Zonal Government existed in fact if not in name. Thus, the creation of a legislative People's Council (*Volkskammer*) and Government in 1949 caused no big change in the system of government. The federal People's Chamber enacted a constitution in October, 1949 and shortly after the East German Democratic Republic was announced, by way of retort to the formation of the West German Federal Republic. The federal government in West Germany is described as "a democratic and social federal state", in which the federal government has control of foreign affairs, finance, personal movements (migration, passports, etc.), customs, railways and postal services.

New States or *Länder* were established in each zone and elections held during 1946. (Fig. 57.) Some of them were entirely new politico-geographic units, that correspond essentially with the "commercial" regions we have described. (Fig. 50, p. 281.) They are all based, however on the pre-existing political pattern, though many of the "inliers" and

Fig. 57. POLITICAL DIVISIONS OF POST-WAR GERMANY.

1. Easter frontier of Potsdam Germany
2. Boundaries of the Zones of Occupation
3. Boundaries of new *Länder*
4. Boundaries of old *Länder* and Provinces of Prussia

Prussian provinces are:

1. Berlin
2. Brandenburg
3. Pomerania
4. Saxony
5. Lower Silesia
6. Hanover
7. Westphalia
8. Schleswig-Holstein
9. Rhineland
10. Kurhessen-Nassau
11. Hohenzollern

Other pre-war *Länder* are:

12. Bavaria
13. Wuerttemberg
14. Baden
15. Thuringia
16. Hesse
17. Oldenburg
18. Mecklenburg-Schwerin
19. Brunswick
20. Anhalt
21. Lippe
22. Schaumburg-Lippe
23. Bremen
24. Saar
25. Saxony
26. Hamburg

Names indicate the Zones of Occupation and the new *Länder*. East of the Oder-Neisse boundary is under Polish administration (Separated Areas).

"outliers" have been abolished. There are fourteen of these *Länder*; namely, Schleswig-Holstein, Lower Saxony, North Rhine-Westphalia, and Hamburg in the British Zone; Hesse, Bavaria, Württemberg-Baden and Bremen in the American Zone; Rhineland Palatinate and Württemberg-Hohenzollern in the French Zone; Mecklenburg, Saxony, Saxony-Anhalt, and Brandenburg in the Soviet Zone. Berlin falls into a Western and an Eastern Sector. The British Zone embraces the main industrial area of the Lower Rhineland and the dairying area of Schleswig-Holstein; the American Zone the predominantly agricultural area of the south and the industrial clusters on the Rhine and in Württemberg; the French the agricultural southwest; and the Russian the whole of the great middle Elbe industrial area. Berlin is situated in the midst of the Russian zone. The Western Sector is a politico-geographical outlier of Western Germany, and the Eastern Sector is contiguous with the Soviet-occupied land. Western Berlin is not only cut off from the western state; it is also cut off from its surrounding hinterland, since this is held by the Soviets. There are differences also in currencies and politics between the Western and Eastern sectors that impede the healthy growth of Berlin and make the holding of Western Berlin both costly and inconvenient from the standpoint of both the Western Powers and the West German Federal Republic. Hamburg, it should be stated, is also cut off from its principal hinterland in the Elbe basin and Berlin by the boundary between the Western and the Soviet Zones.

The difference in the economic structure of the four areas into which the whole of pre-war Germany is divided is shown summarily as follows:

Population and Production in Pre-War Germany as per cent of total

	Western Zones	*Soviet Zone*	*Berlin*	*Separated Areas*
Population	58	22	6	14
Net Value of Agricultural Production (1936) ..	51	26	—	23
Net Value of Industrial Production (1936) ..	61	24	9	6

Moreover, since we have given the figures of occupations for the pre-war Germany, it is fitting to add here the similar figures for the post-war Germany and its constituent *Länder*. These are shown at the end of the chapter. Perhaps the most significant fact revealed in this table is the great increase in the numbers of unemployed, from 12·8 per cent of the total population in 1936 to 22·0 in 1946. In 1949–50 this figure has averaged about 10 per cent. This is due mainly to the enormous shifts in population through the westward movement of refugees, to which

we have already referred. The level of total unemployment in the West is still around 1·5 million (1·9 million in February, 1952) and the position has been described in an E.C.A. report as "explosive".

When the Allied occupation began in 1945 all government had completely broken down and economic activity was in chaos. The immediate task of the military authorities was to establish order and the speedy establishment of self-government by the Germans within the framework of new *Länder*. The initial plan of the Allied Control Council (March, 1946) sought to carry out the principles enunciated in the Potsdam Agreement. It prohibited the manufacture of armaments, heavy tractors, and most chemicals; and reduced the production of steel, light metals, machine tools, heavy engineering, trucks and passenger cars. The aim of the Potsdam agreement to "ensure in the manner determined by the Control Council the equitable distribution of essential commodities between the several zones, so as to produce a balanced economy throughout Germany and reduce the need of imports", failed dismally, since East and West steadily split further asunder. The key fact is that the original plan fixed the production of steel at a maximum of 5·8 million tons; this was closely in line with the Morgenthau plan to "pastoralize" Germany. The speedy recovery of Germany was essential to improve the lot of the Germans and to raise Germany from the status of a vast internment camp, supplied in large parts, by gifts of food from Great Britain and the United States. The permitted levels of industry have been repeatedly raised by the Allied Powers to fit with the trends of production.

All zones suffered from economic stagnation and social dislocation from 1945 to 1947. Industrial production in 1946 was a fraction of 1936—66 to 75 per cent in the Western Zones, and 33 to 40 per cent in the Soviet Zone—the big difference between East and West being due to the thoroughness with which the Soviets immediately carried out the Potsdam policy of dismantling of factories, whereas the policy has been carried out slowly in the west. Revival was hampered by the separation of interdependent industries by the zonal boundaries; by the lack of skills and under-nutrition of the workers; by the virtual elimination of normal foreign trade; and by the lack of the essentials of industry—coal and steel. Agricultural production was disorganized in 1945–46 and the black market was rife. There were catastrophic drops between pre-war and 1946–47 in the food *officially* available to the non-farm population, In 1947 the non-farm population of 33 million in the Western Zones was receiving only 1,000 calories a day, or less than a half of the pre-war figure. There was lack of food, coal, transport, building (or even the clearance of rubble), and an absence of the normal incentives to work.

Western Germany. The change in Germany's fate came with the announcement of General Marshall's scheme for aid to Europe in June,

1947. This was followed by the meeting of representatives from sixteen states in Paris in the summer of 1947 at which it was recognized that western Germany would have to be included in any scheme of European rehabilitation. Shortly after, the United States and Great Britain published their joint revised plan of industry for Bizonia, i.e., their combined zones of occupation (August, 1947). This aimed at raising the productive capacity per head of population to 75 per cent of the 1936 level. The goal of this policy was evident in the raising of the maximum steel production from 5·8 million tons in the first plan (March, 1946) for all four zones, to 10·7 million tons for Bizonia alone. Also the productive capacities of metal, machine, and chemical industries were raised. The dismantling policy, however, was to continue. In October, 1947, a list of 681 factories was published for dismantling in Bizonia, the two chief affected being electrical and machinery production. The London Foreign Ministers' Conference (25 November–15 December, 1947) agreed to the increase of the total steel production of all four zones to 11·5 million tons. The introduction of the revalued mark on 20 June, 1948 in the three western zones and the later revaluation in the Russian zone (23 June, 1948) marked a further step in the formation of two distinct Germanies. The conference of the Western Powers and the Benelux countries at Petersberg agreed on the formation of an International Authority for the Ruhr, with the task of preventing excessive economic concentration, protecting foreign investments, and distributing abroad a part of the coal, iron, and steel production. The six powers represented in this Authority are France, Britain, and the United States, each with three votes, and the Benelux countries, each with one vote. West Germany joined and has three votes. The tripartite Military Security Board remains as the only restrictive authority. The Petersberg agreement set western Germany definitely on the road of unrestricted industrial production. In return, the government of West Germany agreed not to rearm and not to re-Nazify its public life. Among other concessions, twenty-three factories were released from dismantling.[1]

The acceptance of the Schumann plan (see below) will mean that the International Authority will be abolished, and German steel production will be freed of all Allied restrictions on production.

Western Germany has experienced a profound change during the three years of Marshall Aid and especially since the currency reform of June, 1948. Help between April, 1948 and February, 1950 reached one

[1] These include the great Thyssen works in Hamborn, that is normally responsible for ten per cent of Germany's steel production, the Charlottenhütte, and two synthetic oil plants; all of these are in the Ruhr. In addition, the Börsig electrical plant in the French Zone of Berlin is released. On the other hand, dismantling of the Hermann Göring works at Watenstedt-Salzgitter is to be carried out. This is an entirely new community of 100,000 people that is thus deprived of its livelihood, and has made strong public demonstrations against the Allied decision.

billion dollars. During this period industrial production increased from 60 per cent of the 1936 figure to 130 per cent in December of 1950. Value of exports has increased from $300 million in 1947 to $2 billion in 1950 and $3·5 billion in 1951. So effective has this economic recuperation been that it is now officially reported that "the hunger level has been replaced by a standard of living which is little below that of pre-war years"—a fact that is borne out by the statistics of food consumption below. There still remain, however, formidable problems. Housing is one of the biggest, for probably one-quarter of the people (and a higher proportion of its families) are without their own separate dwellings. And this concerns the housing of the refugees of over 10 million from eastern Europe. Unemployment is still over 1,500,000, with nearly 300,000 of these in Berlin. It cannot be claimed that the federal republic is on its economic feet. It is threatened with financial crisis, and it is widely considered that this can only be overcome by curbing the powers of the *Länder* and concentrating authority at the centre. Marshall Aid is being extended through the Mutual Security Agency, indirectly for purposes of defence. But progress since 1948 has served to eliminate the spectre of hunger, to lay the foundations of a new western Europe with western Germany as a part of it, and helped curb the attitude of utter pessimism and inactivity that prevailed down to 1948. But a long way is to be travelled yet.

The most striking features in 1950 in western Germany were the remarkable improvement of employment and production. Steel production topped 11 million tons in 1950 (1938, 18 million tons); coal output was almost up to the pre-war level (1937, 117 million tons, 1950, 110 million tons); and lignite output exceeded the pre-war level (1937, 66 million tons, 1950, 75 million tons). The production of textile yarns (wool, cotton, and rayon) almost exceeded the pre-war level of production. Building activities, as indicated by the production of cement and bricks, doubled in the 1948–50 period. In 1951 they exceeded 1936 by nearly a half. The production of electricity in 1951 was more than double that of 1936. The numbers of employed in mid-1950 reached 13·8 million, with 1·1 million in agriculture and 7·5 million in industry, building and handicrafts (1951 av. 14·6). While industrial production had been absorbed in the domestic market down to the end of 1949, in the first half of 1950 this was almost equalled by the rise in industrial exports. In 1948 imports exceeded the pre-war level, and nearly 44 per cent of the imports came from the United States, as compared with 5·2 per cent in 1937. Exports in 1948 were 40 per cent of the 1937 level, and the proportion sent to the United States was substantially the same as in 1937 (4·7 to 2·5 per cent), while 85 per cent went to Switzerland (50 per cent in 1937). The volume of exports in

1950 went a long way to equalling those of 1936. The exports of July and August, 1950, equalled the 1936 level by volume. The greater part of this increase went to European countries (Netherlands, Belgium and Italy). About 70 per cent of West German exports are now going to western Europe, as compared with 56 per cent in 1936. In 1950 there was also a trend to the normal export pattern in the increase to eastern Europe and Latin America to their 1937 values. Export increases are mainly in engineering industries, and as long as the big rearmament drive continues this is likely to continue. Exports in early 1952 were double the monthly average for 1950! Agricultural production has made a marked recuperation. Index figures, with 1936 as 100, were at 97 for all grains, 114 for raw sugar, 64 for meat and 83 for milk for 1949–50 and the gross output is 87 per cent of 1936. (1950–1, 106.)

The facts of the situation as far as western Germany is concerned are basically clear. Western Germany was always dependent on foreign trade for much of its livelihood. On pre-war standards, it must import some 40 per cent of its food, as well as raw materials. Obviously it must try to produce as much of these things, or substitutes, as possible. It must also export its industrial goods far beyond the pre-war level in order to balance its budget and in order to give full employment to its great increase of population. The need, then, is, first of all, for a drastic reorganization of the tax structure, so as to spread the load more fairly and release funds for government revenue as well as for investment. There is need for the direction of this investment into industrial reorganization—rather than expansion, for the industrial capacity is, by and large, adequate, according to E.C.A. reports. There is need for an increased output of agricultural products, especially for the increase of the cultivated area through reclamation projects. Next, under the heading of industrial production in particular, there is need for a vigorous housing programe, in order that people can live where the factories are—a plain but vital statement of fact. Lastly, it is essential to balance exports against imports; and to solve the "dollar gap", which is excessively large (practically all German imports since 1945 have come from the United States), by reducing the imports from that source, increasing the exports both to the dollar area and to the world at large. The complex pattern of German foreign trade has broken down and is in process of readjustment.

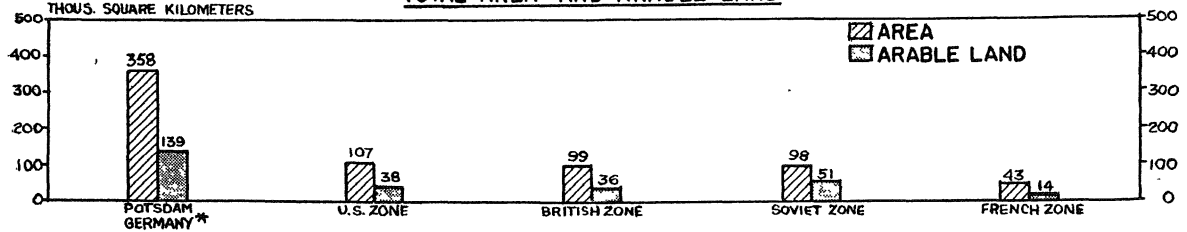
Eastern Germany. The Soviet-controlled zone is in the throes of a two-year plan which began on 1 January, 1949. Substantial progress has been made to date though the programe took off to a bad start. The lifting of the blockade permitted the zone to import machinery, iron and steel products, and chemicals from the west, and the Russians have overdrawn their trade accounts and stock-piled some items. Another

reason for recent headway has been the expansion of international trade. Coal, iron, petrol, and food, are now coming in from the east. It should be remembered that this zone is densely peopled and has inadequate resources of certain foods, manufactured goods, and raw materials. While it includes large agricultural areas, it also embraces the great industrial area of the middle Elbe basin noted above, that imported much of its foods from elsewhere, e.g. meat from Schleswig-Holstein that now lies in the British Zone. Russia has taken an immense toll from the zone. Factories were dismantled wholesale and completely shifted, railways almost everywhere were only left with one track, and the motor vehicle industry was shifted *en bloc* (five big plants). Moreover, until the time of the blockade reparations were at the rate of one-half of current output of industrial production. Large quantities of grain and other food stuffs were commandeered. Further, the occupation force had to be maintained and about one-fifth of the industry is directly controlled by the Russians.

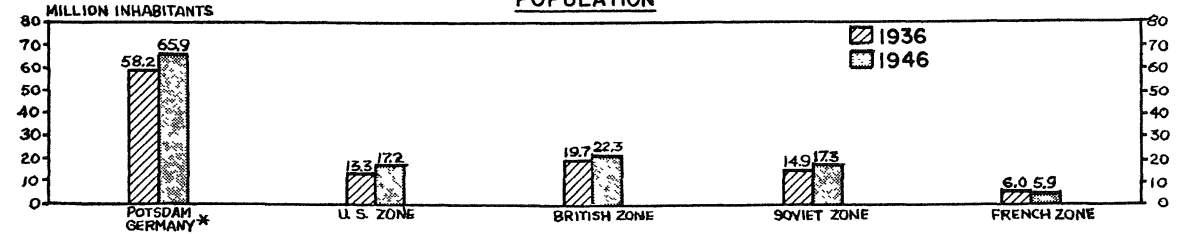
Much of this policy of exploitation, however, was reversed or slowed down when the Berlin blockade started—otherwise there would have been an economic collapse. Several small steel-rolling mills and plants have been restarted and the Soviet sent in iron, steel, grain, and fats. This policy seems to have continued since the end of the blockade. Thus, in the last year or more, big economic advances have been made. There has been a big increase in brown coal output (1948, 110 million tons, 1949, 125 million tons). Output of pig iron and steel doubled in 1949, and may be trebled by the end of the Plan, so that the zone should be able to dispense with imports of steel by the end of 1951. There has also been a large increase of production of textiles. About 130 industrial concerns are controlled by the Russians and are making goods for reparations to the extent of one-fifth of the labour force. Nationalized concerns include one-half of the workers. Level of industrial production was 134 in the first quarter of 1950.

There is likely to be little change in agriculture, however. The zone produced 3·5 million tons of bread grains before the war, and imported a further 750,000 tons, mainly from Polish Silesia. With calory consumption tied down (1950) to 2,100 calories (western zones about 2,500) consumption manages to keep in line with production, but the Soviet Zone will have to depend on imports for about one-tenth of its grain in 1951. Grain production is to show no change in acreage in the Plan and there is a shortage of fertilizers and machinery. The potato crop dropped from 11 million in 1948 to 8 million in 1949. The eastern zone, in other words, is going to remain dependent on eastern Europe for large food deficits for a long period of time. The large Junker estates have been broken up and subdivided among German refugees from

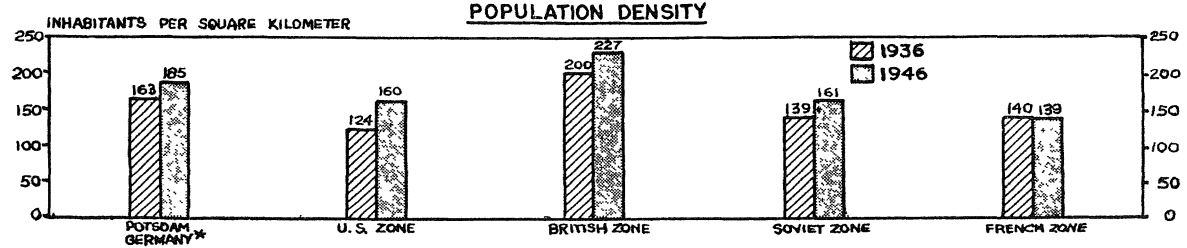
TOTAL AREA AND ARABLE LAND

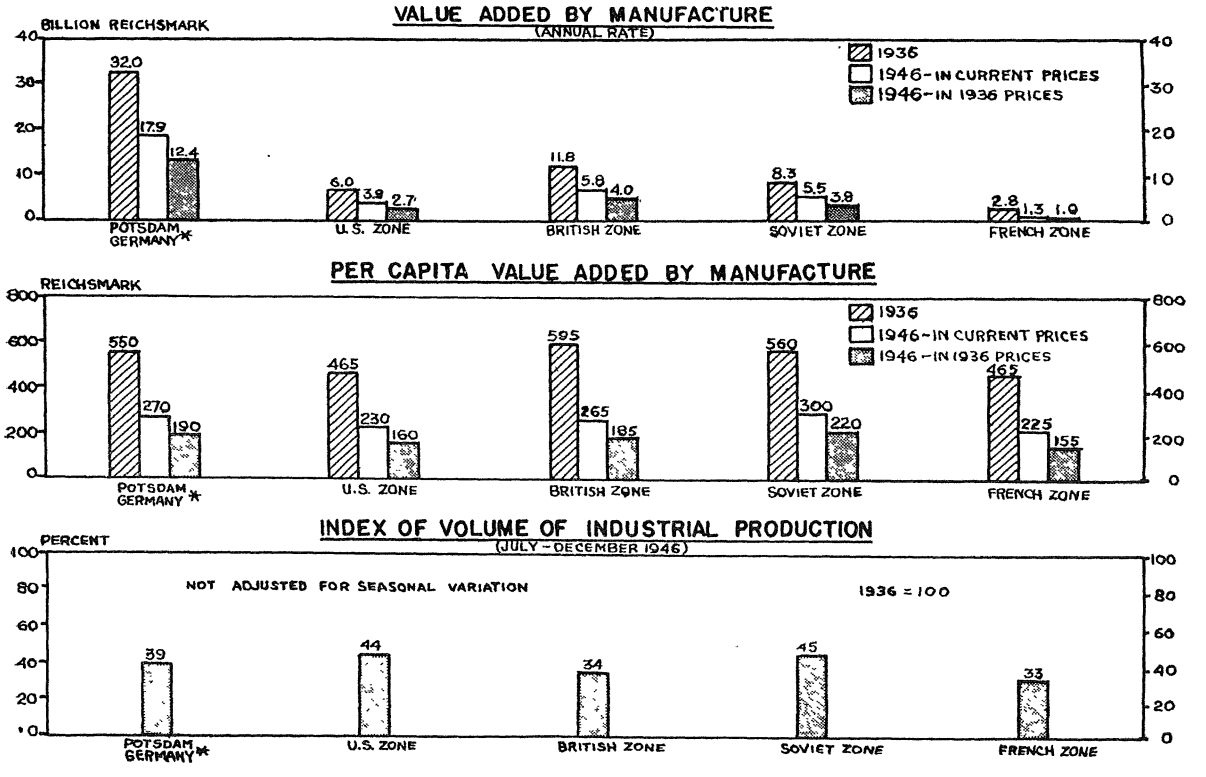


POPULATION



POPULATION DENSITY





* POTSDAM GERMANY INCLUDES BERLIN

FIG. 58—BASIC STATISTICS OF POTSDAM GERMANY BY ZONES, 1936 and 1946 from *Economic Data on Potsdam Germany (Report of the Military Governor)*, September 1947

Poland, and many of the small holdings will undoubtedly be uneconomic. This may be part of a plan to speed up collectivization. The big farms depend on nationalized machine pools. "The zone is being rapidly sovietized and increasingly bound into the east European economy, while its dependence upon the western zones is diminishing." The level of agricultural production in 1950 was probably about less than two-thirds of the 1936 level, whereas in the western zones the recovery under E.C.A. has been rapid and dramatic, so that production there now exceeds the pre-war level and rationing has been abolished.[1]

THE POPULATION PROBLEM

The Potsdam Agreement decreed the shift of about 6½ million Germans from the lands east of Germany, and the Powers decided on a rough division of quotas by zones for the receipt of the refugees—the Soviet was to take 2¾ million, the American Zone 1¾ million, and the British Zone the bulk of the remainder, from Poland. The French came out best, since they were to take the small quota from Austria. The mass expulsions, however, were far greater than this, for the western Allies had reckoned on Poland administering only temporarily the eastern areas, whereas the Poles took permanent possession by forcibly expelling some 9 million Germans. In the West, after these broad quotas had been laid down, the *Länder* had to arrange between themselves how they would divide their shares in each zone, depending on housing conditions, food stocks and job opportunities. The Potsdam Agreement ordered that the movements should be carried out in an "orderly and humane manner". This injunction was seldom obeyed. The refugees were expelled from Czechoslovakia, Poland, and Hungary *en masse* and arrived at the station depots in the *Länder* with no more than the clothes on their backs, and with an altogether disproportionate number of old and young, and few males. The Germans, on the other hand, carried out their obligations with typical thoroughness, and provided emergency rations to the arrivals and found some kind of shelter for them, with other families or in camps. The order to them was to "integrate the expellees into the German economy", although in 1946, when the wholesale mass expulsions were in full swing, often arriving at the rate of 40–50,000 a day, the German economy was at its lowest ebb. Moreover, the total number is far in excess of what the Potsdam Agreement foresaw. The refugee is one of the greatest social and economic problems for the new Germanies, west as well as east.

We recall an address by the economist Schacht at the centennial

[1] See "East German Recovery" in *The Times*, London, Feb. 9, 1950, and "Eastern Germany: A Survey of Soviet Policy, 1945–50", *World Today*, July, 1950.

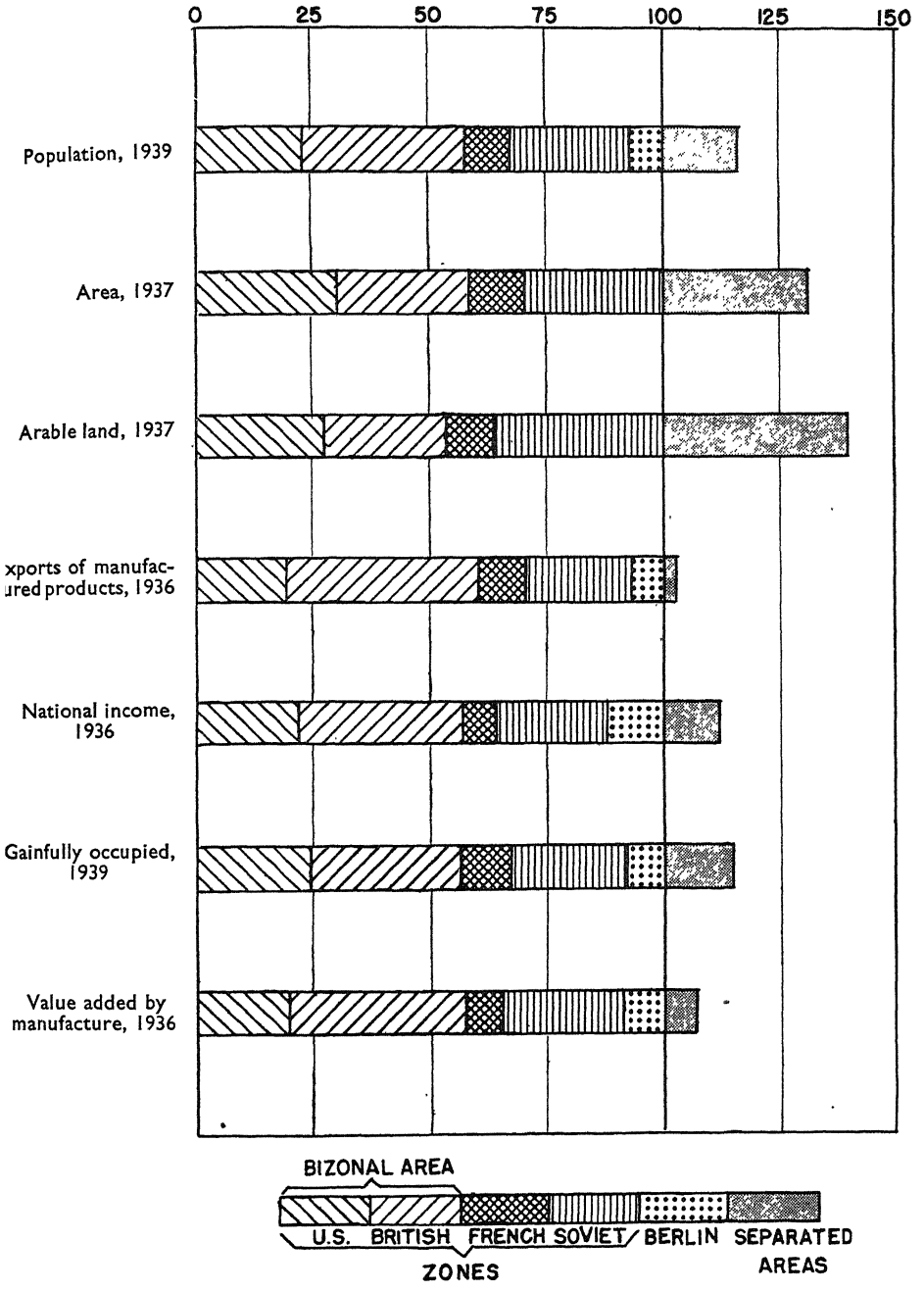


FIG. 59—PRE-WAR BASIC STATISTICS FOR POTSDAM GERMANY BY ZONES from *Economic Data of Potsdam Germany* (*Report of the Military Governor*), September 1947

jubilee of the Frankfurt Geographical Society in 1937, in which he circulated a page of statistics to demonstrate that the Reich would have to expand or explode. This argument is much more cogent today. The enormous shifts of population in Germany in the last ten years present a problem that will take many years to solve. "Integration" is a slow process. But, in essentials, it can be simply stated. The population of Potsdam Germany, in spite of war losses of some 5·5 million, increased by 6·3 million or 11 per cent from 1939 to 1946, so that the density of peoples increased from 167 to 184 per square kilometre. On the other hand, the areas east of the Oder and the Neisse, in spite of the immigration of 3·5 million Poles, decreased by 4·5 million, so that the density fell there from 83 to 51 persons per square kilometre. This increase was mainly due to the influx of refugee Germans from eastern Germany (5·6 million) and central Europe (4 million) to the extent of nearly 10 million, the overwhelming majority of whom were in the British and American Zones. At the end of 1948 the refugees made up 60 per cent of the unemployed in Schleswig-Holstein, 30 per cent in Bavaria, 25 per cent in Württenberg-Baden and Hessen. There are then two problems—to provide these refugees with jobs, food, clothing, and shelter; and to provide the whole of the population with a standard of living comparable with that of its neighbours on a long-term basis. In July, 1948 there were 11·4 million refugees in Potsdam Germany, with 7 million in the Western Zones, and 4·4 million in the Soviet Zone. The total may well go up to 14 million. The bulk of the expellees moved into the country villages, since the towns were destroyed. The population of the rural districts increased in the 1939–46 period by 38 per cent and by 45 per cent to April, 1949. Thus, in the *Landkreise* of the British and American Zones, the following enormous increases are recorded for October, 1946—Schleswig-Holstein, 90 per cent, Niedersachsen, 55 per cent, Bavaria, 41 per cent, Hessen, 36 per cent, Württemberg-Baden, 31 per cent, and Nordrhein-Westfalen, 17 per cent. Some of the refugees are in special camps, but about 1·5 million are living in the most appalling slum conditions. About 2·3 million of the refugees share kitchen quarters with the "indigenous" folk. Another third live, cook, and wash, in one room. The food situation is also very bad, since the Potsdam Germany with about 70 million people—roughly equal to the number of the whole of the pre-war Reich—has lost 25 per cent of its grain production, thirty per cent of its sugar beet production, and 25 per cent of its meat production. The story is not yet complete, for out of the 65 million people in the four zones of Germany in 1946, in addition to the 10 million refugees, there were 3·5 million evacuees whose homes in the towns were destroyed; and nearly 1 million "foreigners" or "displaced persons". Another 2 million were evacuated inside their

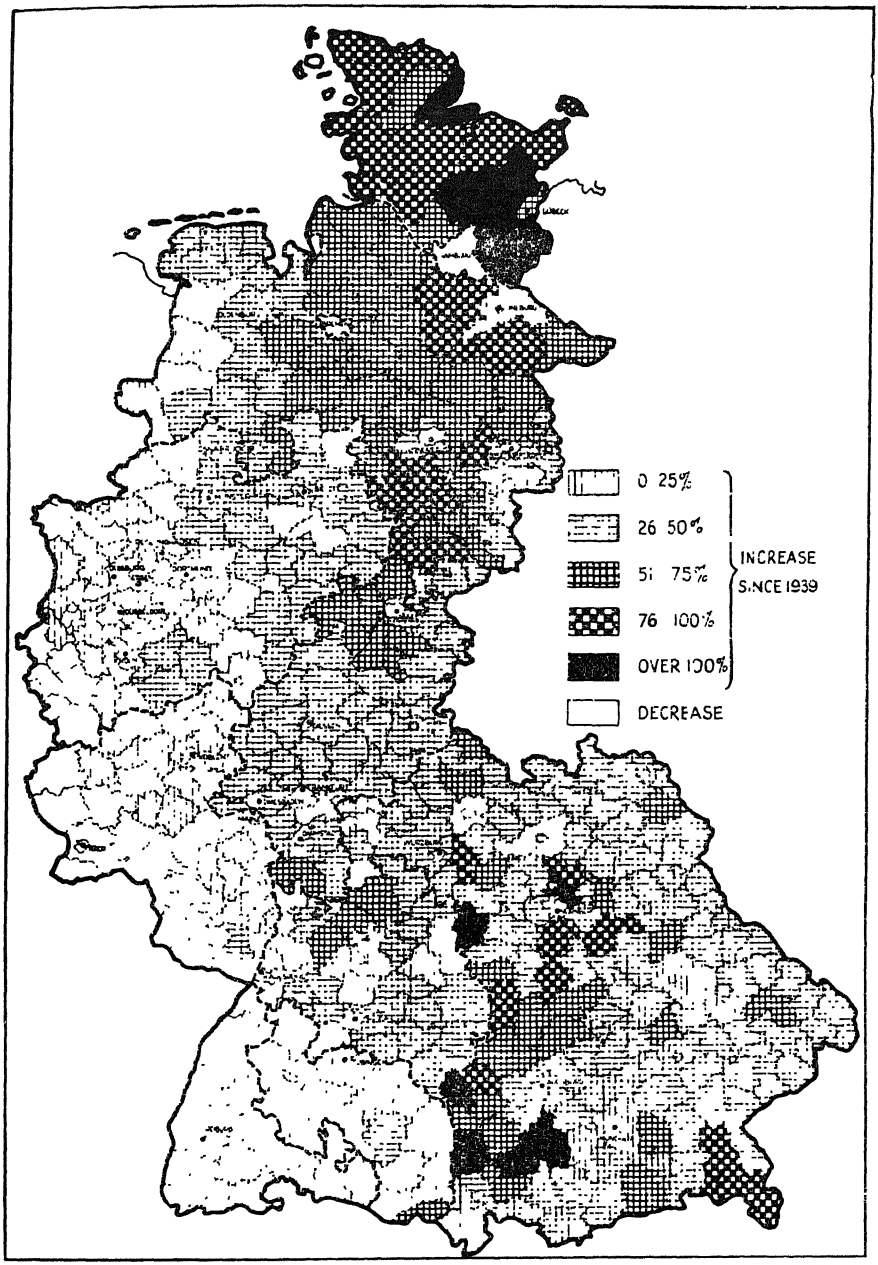


FIG. 60—WEST GERMANY: INCREASE OF POPULATION, 1939–46 (*by Kreise*)
(scale, 1 : 5 m.)

own *Länder*. With prisoners and interned this means that about 20 million—between a half and a third—people are uprooted and without homes. Of the refugees in Bizonia 85 per cent in 1946 were in the country and only 15 per cent in towns, and in Bavaria, for example, over 40 per cent of them were in small villages with less than 5,000 people. Out of 545 *Landkreise* of the four zones, only 49 record a decrease in the 1939–46 intercensal period and most of these were in the French Zone or on the eastern border of the Russian Zone. Many areas have an increase of 25 to 50 per cent. In Schleswig-Holstein almost all of the *Landkreise* increased by over sixty per cent, whereas most of the towns recorded a decrease.[1] (Figs. 60 and 61.)

This situation gives rise to a multitude of social and economic problems involved in the absorption of these people into the life of their new neighbourhoods and the *Länder*. The economic and social structure of the village is being radically changed. The general problem of attaining a reasonable standard of living is tied up with the questions of an increased productivity of farming and the growth of industry with a maximum of skills and a minimum of imported raw materials. And above all the refugees must have work, either unskilled or fitted to their particular skills. Provision must also be made for the many disrupted families, the aged, the infirm, and children.

Germany's housing problem is so enormous that it presents a major task of physical planning for the next fifty years. In 1939 there were 16 million dwellings in the four zones and 10·5 million in the three western zones. Four million dwellings were destroyed and 2·5 million damaged. Taking the former figure, there remain 12 million dwellings in all Germany and 7·5 million in the western zones. It is reckoned that in mid-1948 there were 6·3 persons per dwelling in Trizonia, 4·7 in the Soviet Zone and Berlin. For Trizonia, this amounts to 1·80 persons per living-room, as compared with 0·98 for the pre-war Reich. It is reckoned, on a conservative basis, that about 4 to 5 million dwellings are needed to cope with the present situation and the increasing number of married couples each year. At present the rate of building is about 250,000 per year; E.C.A. authorities consider that it should be stepped up to 350,000.

The problem arises from two circumstances, first, the terrific aerial bombardments during the war, that devastated whole cities; and, second, the fact that the ten million refugees who flocked in immediately after the end of the war could not be housed in the cities, but had to be accommodated for the most part in the small towns and the villages of the countryside. The latter aspect has already been touched upon. Let us now consider the bigger cities.

The policy of "city-gutting", or, in more palatable terms, "area

[1] For these data see Edding, *Das Deutsche Flüchtlingsproblem*, 1949.

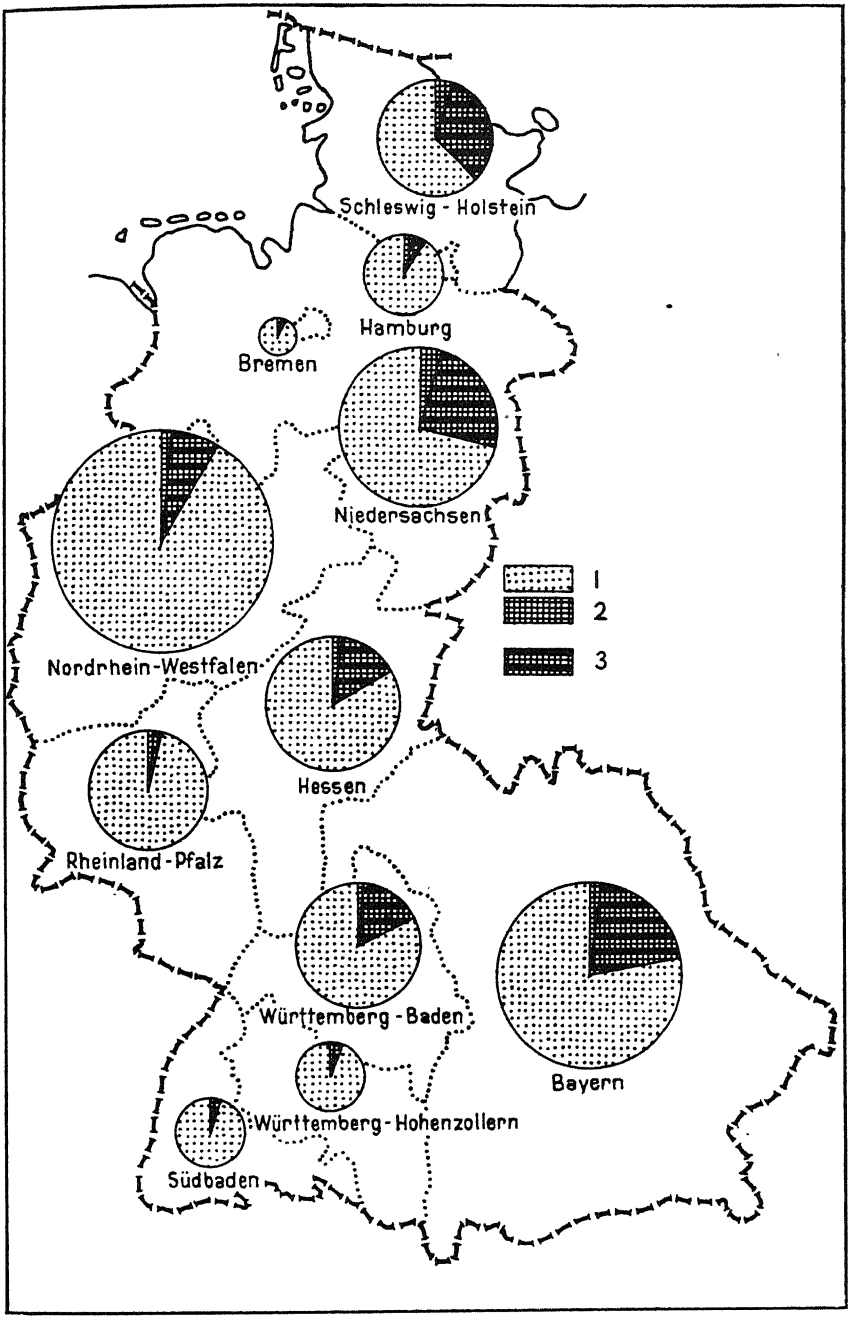


FIG. 61—WEST GERMANY: NATIVE AND REFUGEE POPULATIONS IN 1946 (scale, 1 : 5 m.)

1. Native
2. Refugees from Russian Zone and Berlin
3. Refugees from east of the Oder-Neisse line

bombing", was responsible for most of the destruction of German towns. This plan was patterned on that initially worked out, on a smaller scale, by the Germans. The aim of this bombing is described by Air-Marshal Harris as follows:

" . . . it must be emphasized that in no instance, except in Essen, were we aiming specifically at any one factory during the Battle of the Ruhr; the destruction of the factories could be regarded as a bonus. The aiming points were usually right in the centre of the town; the average German city spreads outwards from the old centre, which was naturally more densely built-up than the newer and well-planned suburbs; it was this densely built-up centre which was most susceptible to area attack with incendiary bombs. The objective of the campaign was to reduce the production in the industries of the Ruhr at least as much by the indirect effect of damage to services, housing, and amenities, as by direct damage to the factories or railways themselves."[1]

Let us continue the Air Marshal's record. Seventy German towns were attacked—that is, almost all the towns with over 100,000 inhabitants, as well as a number of smaller ones. Twenty-three of the cities which were attacked had more than sixty per cent of their built areas destroyed. Forty-six had about half of their built areas destroyed. Thirty-one had more than 500 acres destroyed. Hamburg and Berlin each had over 6,000 acres destroyed, and Düsseldorf and Cologne 2,000 acres each. Over 700 acres were demolished in the first raids on Lübeck and Rostock. Between 1,000 and 2,000 acres were devastated in each of Dresden, Duisburg, Essen, Frankfurt, Hanover, Munich, Nuremberg, Mannheim, and Stuttgart. These figures may be compared with the destruction of 100 acres in Coventry, 600 in London and 400 acres in Plymouth. Sixty per cent of the houses in Hamburg and 50 per cent of those of Düsseldorf were destroyed. In other words, much of what we may write in the following pages about the cities is past history. Yet there is no shadow of a doubt that these cities will quickly rise again to their original proportions; in many cases this has already taken place in spite of the lack of adequate living quarters. What remains to be seen is whether the permanent rebuilding of the future will profit by the opportunity afforded by such wholesale devastation, and seek to build new cities on sound principles of city planning.

INTER-REGIONAL TRADE

Germany is now divided into four sections—the West and East Republics, Berlin, and the Separated Areas. The economic character

[1] Quoted from Marshal of the R.A.F. Sir Arthur Harris, *Bomber Offensive*, Collins, London, 1947.

of those areas is summarized on p. 370. Let us turn to the pre-war and post-war patterns of trade between them and with the outside world.[1]

Pre-war Trade. The overall pattern of trade between these areas in 1936 when examined in terms of trade with each other and with foreign countries, reveals two salient facts. (i) Trade with the rest of Germany was a far more important element in the economic life of each area than its trade with all foreign countries. This was least marked in the case of the Western Zones, 43 per cent of whose trade went abroad and 57 with the rest of Germany. This area alone was responsible for two-thirds of the foreign trade of Germany. The inter-zonal trade of the other areas was five times that of their foreign trade. (ii) The trade between the Western Zones and the Soviet Zone was the greatest, each accounting for two-thirds of the other's total inter-regional trade. These two areas had each about an equal amount of trade with Berlin and the Separated Areas. The Soviet Zone was unusually dependent on trade with other areas of Germany (80 per cent). This was true also of the Separated Areas although their total trade was much smaller. So much for the overall picture.

In examining trade in foodstuffs in 1936, we must recall that Germany was self-sufficing in bread grains, coarse grains, potatoes, sugar beet, meat and eggs, but imported about 15 per cent of her consumption of butter and cheese. The Separated Areas exported a balance of 31 per cent of their wheat and rye, 12 per cent of their barley and oats, 6 per cent of their potatoes, 40 per cent of their meat, 37 per cent of their butter and cheese, and 35 per cent of their refined sugar. The Soviet Zone, with a marked concentration of crops rather than cattle, had a complicated movement of foodstuffs. It exported 24 per cent of its wheat and rye, 6 per cent of its barley and oats, and about 4 per cent of its potatoes, whereas it imported 13 per cent of its meat and 40 per cent of its butter and cheese. In other words, the two eastern areas exported crops to Berlin and the West, and the Separated Areas sent livestock products to the rest of Germany. The Western Zones imported bread grains and sugar (23 per cent and 28 per cent of their apparent consumption), whereas net imports of meat, butter, cheese, and potatoes were only 5 per cent of consumption. One-half of their imports of food and feeding stuffs came from the other three German areas and one-half from abroad.

Bearing in mind the distribution of industry in the different Zones, with which we should now be familiar (see Ch. 10), we may draw certain conclusions from their trade in industrial products in 1936. As for solid fuels, the West had 80 per cent of the coal output and the Soviet Zone

[1] " Pre-war regional interdependence and post-war interzonal trade in Germany ", in *Economic Bulletin for Europe*, Third Quarter, 1949, Research and Planning Division Economic commission for Europe, United Nations. Geneva, January, 1950.

63 per cent of the brown coal. There was an eastward movement of 14·6 million tons of coal and coke from the Western Zones and this supplied three-quarters of the defficiency of the Soviet Zone and all of Berlin's needs. About 60 per cent of the fuel in the Soviet Zone was derived from lignite, so that the relatively small supply of imported coal and coke was essential for the industrial purposes in which it was almost exclusively used.

The iron and steel picture was dominated by the Ruhr. The Western Zones produced almost all the pig (97 per cent), steel (91), and finished steel (88). But while the other zones depended on the West, the former made finished products and yielded a large surplus for export. It had a large import and export of machinery with the rest of Germany. The Western Zones exported over 17 per cent of their output to the rest of Germany, and drew 18 per cent from it. The Soviet Zone figures were 32 and 40, Berlin 40 and 33, and the Separated Areas 50 and 83 per cent. Here we see a very intimate regional interdependence, and particularly significant is the great dependence of the East on the West. The Western Zones were almost self-sufficing in the major fertilizers. The Soviet Zone was less well balanced in this respect, for it had large surpluses of potash and nitrogen, but over one-half of its basic slag was imported (from the Ruhr). The Separated Areas depended entirely on imports from the rest of Germany. As for textiles, the concentration of the woollen industry in the Soviet Zone (Saxony) and the cotton industry in the Western Zones resulted in a good deal of inter-regional trade. The greater part of the trade was in finished goods, but there was also much trade in yarns.

Thus, in conclusion, as regards the normal pattern of pre-war trade in Germany we may say that the Western Zones were relatively independent of the other areas. They had and have great coal production and industrial production, although they drew potash, brown coal and some agricultural products from the rest of Germany. But the other areas were far more dependent on the Western Zones for their surpluses of coal, iron and steel, heavy machinery, and some chemicals. The other areas were also more dependent on inter-regional trade for light industrial products than were the Western Zone on them. Both the Soviet Zone and Berlin were very dependent on the rest of Germany, for both supplies and markets, for their predominantly light industrial products.

Post-war Trade. How is the pre-war picture of inter-regional trade changed since the war? Since the occupation the movement of goods of all kinds has been hampered by controls, special authorizations and trade agreements and, since June, 1948, by different currencies, between the Western Zones and the Eastern Zone. Moreover, the population in Potsdam Germany has increased by nearly 20 per cent between 1936 and 1948. The density is now the same as that of the United Kingdom, so

that there is a big increase in food requirements in relation to agricultural resources. The material resources of the country, however, remain unchanged. In spite of bomb damage and dismantling, the potential industrial capacity is not far below the level of 1936. Agricultural production has recuperated quickly in the last five years, but it is likely, that even when the normal production is attained, the new Potsdam Germany would only be able to supply about 65 per cent of its needs, as compared with 85 per cent before the war, reckoning on the basis of the pre-war rate of food consumption. All these changes will have deeper effects on the Western Zones than on the Eastern, and will be particularly difficult in northwestern Germany (the British Zone). The degree of self-sufficiency of the Western Zones in food is probably about 60 per cent, as compared with about 80 per cent in the Soviet Zone.

The Separated Areas have had a complete reorientation of their trade, since their trade with Germany since the war has been negligible. This means that Potsdam Germany as a whole is much shorter of both food and Silesian coal than before World War II.

Trade between the Western Zones and the Soviet Zone has been erratic and irregular and is difficult to measure. The following conclusions are based on the figures for the first half of 1948. The inter-regional trade is down to one-fifteenth of its 1936 *volume* or one-tenth in terms of *prices*. This disappeared in mid-1948 and has only been resumed since the end of the Berlin blockade. Exports to foreign countries were also small, about one-fifth in each case, and imports were at 60 per cent of the pre-war level in the Western Zones and only 22 per cent in the Soviet Zone. The level of production of both agricultural and industrial goods at that time was 53 per cent in the Western Zones and 62 per cent in the Soviet Zone. But there have been big changes since mid-1948, especially in the Western Zones, where in 1950 exports were over one-half of the 1936 level. Trade in foodstuffs was negligible in 1948. The Berlin Agreement in 1948 and the Frankfurt Agreement October, 1949 to June, 1950 envisaged a big increase in food deliveries between east and west. Western Germany is short of bread grains and sugar and needs them badly from the Soviet Zone; large quantities have been imported from overseas. Coarse grains and potatoes are needed, especially to build up the livestock shortage. But the Soviet Zone is not in great need of western products except for pedigree cattle from Schleswig-Holstein, tobacco, and wines. But even the Frankfurt Agreement provided less than one-tenth of the agricultural products that moved west from the Soviet Zone in 1936, and the deliveries in the opposite direction have been still smaller.

Trade in minerals and engineering products has wellnigh disappeared and there is a real danger that with the revival of Western Germany

there will be surpluses unless the eastern areas can be persuaded to take them. In other words, Germany will have to greatly expand her exports. (This is already evident in the 1950 trends.) The shortage of machinery has serious consequences for both the Western and the Soviet Zones.

Adaptations to the disruption of the pre-war threads of trade have taken three forms—reduction in the supplies of food and industrial goods available to both sides; the expansion of local production to offset the deficiencies of goods previously imported; and, in part, by the import of the goods from other countries that were formerly obtained from other parts of Germany. The Western Zones seem to be in an unexpectedly stronger position than the Soviet Zone for recuperation and viability. For before the war inter-regional trade played a lesser part in its economy than in the other areas. Moreover, it has been developing industries to replace the goods that it cannot now obtain from the other areas in the east. On the other hand, inter-regional trade in industrial goods played a large part in the economy of the Soviet Zone and were far more essential to the maintenance of that economy. The Soviet Zone drew coal, steel, and other heavy industrial products, from the Western Zones that it cannot replace, and this makes general industrial recuperation more difficult.

In agriculture, the Soviet Zone had a considerable export trade with the other areas, and is able to meet its requirements even with an increased population. The Western Zones, however, were net importers of most foodstuffs and will have much more difficulty in meeting their minimum requirements. This problem is made more difficult owing to the loss of the surpluses of the Separated Areas, and due to the increase of 8 million mouths in the Western Zones. The situation has been temporarily solved by a big increase of foreign (United States) imports into the West. This, however, is one-sided and the West, even with its imports cut, must greatly expand its exports in order to pay for its imports. The Soviet Zone will have less difficulty in adjusting its foreign trade, since it is not so dependent on foreign imports of foods, and its industry (with the exception of steel) is largely complementary to that of East European countries, with which it is now more closely associated.

COAL AND STEEL PRODUCTION IN THEIR INTERNATIONAL SETTING—SCHUMAN PLAN

West Germany is the major producer of coal, coke, pig iron, and steel, in continental Europe. A major European problem, then, is how to prevent the use of this productive potential for purpose of rearmament; but how to increase it for the general purpose of peaceful progress

among the countries of western Europe. The international cartel organizations sought to regulate production in the 'thirties. Present attention is focused on the so-called Schuman Plan, a plan that was initiated in France by the financial wizard M. Jean Monnet, and sponsored by one of its recent Prime Ministers, M. R. Schuman. This plan seeks to regulate production under the aegis of a supra-national authority. France, western Germany, the Benelux countries and Italy are participating in the elaboration of the Plan, but Britain, maybe only for the time being, holds aloof. The details of the plan have now been worked out and it remains for the governments to accept it. The purpose of this new community will be "to contribute, in harmony with the general economy of the member states, to economic expansion, to the development of employment, and to the improvement of the standard of living, through the establishment of a single market". Import and export duties are to be abolished on the movements of coal and steel, as are subsidies, discriminatory measures in price, delivery terms, transportation charges, and restrictive practices. Executive power is to lie with a High Authority of nine members. This body is to be subjected to checks by a Council of Ministers and an Assembly, modelled on the Council of Europe. The Council will have one representative from each government, while the Assembly will be composed of delegates from the Parliaments of the member States. A judicial body will adjudicate complaints brought against the High Authority. This constitution, it has been remarked, bears a striking resemblance to that of Bismarck's Reich of 1871 which was set up a few years earlier with the limited functions of a "customs parliament" to administer the German Customs Union. The transition to political federation was thus easily taken. And such indeed was the purpose of M. Schuman's original proposal—that by "pooling basic production, and by creating a new high authority whose decisions will be binding" on the member countries, a first substantial step would be taken to a political federation of western Europe.[1] Our immediate objective, in outlining this plan, is to indicate that this international authority would automatically take the place of the restrictive powers of the western Allied governments on the production of coal and steel in Germany. These industries would be geared to the needs and subject to the common consent of the governments that participate in the new organization.

The immediate question before us is—what are the basic facts of production and trade in coal and steel, pre-war and post-war, that form the background to this plan? Refer to the section on pp. 296–302.

The Pre-war Pattern. Germany and Britain supplied two-thirds of the coal consumed in Europe west of the Soviet Union, or three-quarters

[1] See "The European Coal and Steel Community", *World Affairs*, May 1951.

with Poland. The exports of Germany and the United Kingdom accounted for 40 per cent of the coal used in western Europe, and large amounts were also exported overseas. France was the country most dependent on imports of coal, the world's largest importer, and 30 per cent of the total imports of all the European countries. This dependence was most marked in the iron and steel industry. France exported in exchange large quantities of iron ore. There was, thus, a great triangle of exchange, formed by the Ruhr, northern France, and the minette iron ore field of French Lorraine. In this triangle there are two opposed types of iron and steel industry—one based on local production of iron and imported coal and coke, such as Lorraine; the other, based on the local production of coal, and imported iron ore, such as the Ruhr, Belgium, northern France, the Netherlands, and the Saar.

The furnaces of Lorraine in France depended on imported coke. About 30 per cent of its consumption was imported in 1937. Most of this came from Germany, with smaller amounts from the Netherlands and Belgium. Luxembourg was even more dependent on Ruhr coke. On the other hand, the dependence of the Ruhr on Lorraine ore was smaller and decreased between the wars. Even in 1913 only 4·8 million tons, or 30 per cent of the iron ore consumption of the Ruhr, came from Lorraine; the remainder came from Sweden and Spain. Between the wars, the imports from Lorraine were much less, but the imports from the other areas, and domestic production, increased. Belgium and the Saar, however, continued to depend on Lorraine-Luxembourg. The coals exported from the U.K. were steam-raising coals; the U.K. exported very little coke. The U.K., in other words, had very little connection with this industrial tie-up. On the other hand, the U.K. did export considerable quantities of pig iron for steel-making in 1913 (1·1 million tons) but this almost disappeared between the wars. The U.K., however, has long imported large quantities of semi-finished iron and steel products for re-rolling in British mills. This was 2 million tons in 1913 and 2·7 million in 1929, but it fell to about 1 million tons in the 'thirties, because of duties and quotas. Before World War I there was a big trade in pig iron, especially from Lorraine and Luxembourg, to the Ruhr (1·6 million tons in 1913). But between the wars this trade was negligible. Trade in crude and finished steel also followed this same trend as countries increased the volume of their own production.

Post-war trends. In 1949 coal production still fell short of the 1937 level by 57 million tons. This decrease was most remarkable in the U.K. and Germany, so that their great volume of exports was practically eliminated. Exports of the two in 1937 were 89 million tons and in 1949 only 28 million tons. France has filled the vacuum by importing more coal from elsewhere and by increasing its own production. The

decline in the production of coke has been almost entirely in Germany, although this was balanced by the decrease in its own requirements and the drop of exports to eastern Germany. Thus, German exports of coke to west European countries actually increased, especially to France. Trade in iron ore shows two changes. There has been a 20 per cent decline in production in Lorraine-Luxembourg, and there has been a big decrease in the German imports. There has been a reduced production of steel in Germany, and a decrease in imports, and it has depended to a larger degree on its own production than before the war. In 1937 these domestic ores provided one-fifth of the total consumption, but in 1949 this proportion had risen to one-half. There was, in other words, a big fall in apparent iron ore consumption. Yet crude steel production in the whole area was less proportionately reduced, and this was due to a great increase in consumption of iron and steel scrap. In 1949 western Europe consumed 5 million tons more scrap than before the war. These general changes have tended to reduce the interchange of raw materials between the iron and steel producing centres of Europe, but there has been little change in the pattern of exchange of finished goods. Trade in pig iron and crude steel is still negligible, and trade in finished products is at the same level as in 1937.

The question that the Schuman Plan will try to solve is to effect a more economical functioning of these various centres of production in western Europe.[1]

The benefits of a unified market for west European coal and steel production would be achieved both through greater specialization at the finishing stages of steel production, and in a freer and more active trade in the basic materials—coal, coke and iron ore. The expansion of production of these products in low-cost areas would serve to reduce steel and coal costs, and to release man-power and capital that could be used elsewhere. The most significant economies could be made in replacing coal production in the high-cost areas of Belgium and France by more coal from the Ruhr and in greater production and use of French iron ore in place of the high-cost production of domestic ores in western Germany. Any such changes, however, demand changes in production and trade policies. And this is the overall objective of the Schuman Plan.

THE PLACE OF GERMANY IN EUROPE

The place of Germany in Europe should be evaluated here in the light of the location of the German realm in Europe and the changing

[1] The detailed aspects of this whole problem may be studied in the report on *European Steel Trends in the Setting of the World Market*, Steel Division Economic Commission for Europe, 1949, and in a long article on "The Coal and Steel Industries of Western Europe", in *Economic Bulletin for Europe*, a U.N. Publication, Second Quarter, 1950.

geographical pattern of its relationships with its neighbours. One of the primary concerns of any State is to establish unity within diversity. This is a constant preoccupation of every State and it is also an international problem since groups of States, through common interests and attitudes, tend to work together, in spite of their differences. This thought is particularly appropriate to the problem of Germany and its place in Europe.

Europe is divided through history between east and west and the division, that is both cultural, ethnic, and strategical, is crystallized today in what is popularly described as the Iron Curtain. This line runs through the middle of pre-war Germany and divides the West and the East German Republics, sponsored respectively by the Western Powers and the Soviet Union. This line corresponds essentially to the divide Mackinder envisaged between the lands that could be controlled by sea power in the west and by land power in the east. In the line-up of Democracy against Communism, Germany, situated in the heart of Europe, is divided, and a part of it lies in each camp. Furthermore, in the alignment of the western powers in the organization for European Economic Co-operation and the Atlantic Treaty Organization, West Germany is involved with the west, East Germany with Soviet Russia. The west Germans, however, are perplexed by the question—where will the Western Allies take their stand in the defence of western Europe—on the Elbe or on the Rhine? Or on the Channel and at the Pyrenees? How are the land, resources (and the people) of west Germany to be protected? Nobody at present seems to know the answer to this question, although it will become clearer as the Allies become militarily stronger. The question of German rearmament is of gravest consequence for the western Allies as well as for the German people.

The seventy-odd million Germans lie embedded in the heart of Europe and their land may become the scene of conflict once again. The intermediate location of Germany between west and east is certainly evident in the conflict of propaganda of western Democracy and the Soviet Communism. What role are the two new German republics to play in this new Europe, that may stabilize in its present pattern—although a few years ago it was held universally that the failure to formulate a united Germany, as envisaged at the Potsdam Agreement, would spell catastrophe—or may crumble again through a future conflict, the shape of which it is impossible to foresee?

The permanent unchanging facts are that the German lands, however defined, occupy the heart of Europe and have the longest land frontiers of any other single state, and lack any natural defences along those frontiers; that the Germans, with their strength and weakness of national character, make up the greatest single block of people in Europe, except

the Russians; and that western Germany contains the greatest single seat of industrial production in Europe, the Ruhr. (Although, it should be noted, upper Silesia, serving central Europe, and the Donetz basin, serving eastern Soviet Europe, are rapidly becoming close rivals in production, and serve distant major market areas in central and eastern Europe). Finally, the Germans, divided between east and west, must reorient their economies, cater for much larger numbers of people, live economically, and, like Britain, "export or starve". The economic production of Western Germany must be revived and increased and make its contribution to world trade, and especially to the trade of Europe. Here, however, the loss of the central European markets, in which German trade found one of its main outlets in the last fifty years, must be compensated by expansion elsewhere. The expansion of this trade is essential not only to feed the Germans with what the dieticians inform us these days are the minimum essentials for normal health, but also to contribute to the minimum essentials, and better living conditions, of the peoples of continental Europe. Germany's industrial products are also needed now for rearmament and this is always unfortunately the speediest stimulus to production.

Postscript. In May 1952 the Western zones of occupation became an independent sovereign State with the title of "Federal Republic of Germany". It has a population (excluding Berlin) of about 45 millions, as compared with 17 millions in the Eastern, Soviet dominated, republic. The period of Allied "occupation" is ended. The economic revival of Western Germany continues, and industrial production and foreign trade in 1951 and in early 1952 were greater than in 1950 and considerably exceed the levies in 1936. The new State now enters into full and equal partnership with the community of west European States. But each step taken by the West in favour of Western Germany is followed by similar Soviet action in Eastern Germany. The German realm is more and more tragically divided. The situation is thus fundamentally unstable, since pre-war Germany is divided in itself between West and East, as well as between the conflicting ideologies and strategies of Western Democracy and Soviet Communism.

APPENDIX

POPULATION OF POTSDAM GERMANY, 1939–46

Länder and Zones	*Area (sq. km.)*	*Population (thousands)*		*Density per sq. km.*		*Refugees*	
		1939	1946	1939	1946	*Number*	% *Total Pop.*
Schleswig-Holstein	15,658	1,589	2,650	101·5	169·2	837·0	31·6
Niedersachsen ..	42,218	4,540	6,431	96·1	136·2	1,475·5	22·9
Nordrh. Westfalen..	34,076	11,945	11,797	350·5	346·2	710·9	6·0
Hamburg	747	1,712	1,424	2,291·8	1,906·3	57·9	4·1
British Zone Total..	97,698	19,786	20,303	202·5	228·3	3,081·8	13·8
Bayern	70,238	7,038	9,029	100·2	128·6	1,657·7	18·4
Hessen	21,117	3,479	4,064	164·8	192·5	552·5	13·6
Württ.-Baden ..	15,700	3,217	3,675	204·9	234·1	549·2	14·9
Bremen	404					25·3	5·2
American Zone ..	107,459	14,297	17,256	133·1	160·6	2,784·8	16·1
Rheinland-Pfalz. ..	19,856	2,962	2,761	149·2	139·1	35·0	1·2
Südbaden	9,852	1,230	1,198	124·9	121·6	24·3	2·0
Württ.-Hohenzollern	10,406	1,076	1,119	103·4	107·5	35·8	3·2
Saarland	2,599	893	880	343·6	338·6	—	—
French Zone ..	40,114	5,268	5,078	131·3	126·6	95·1	1·9
Trizone	245,271	39,351	44,637	160·4	182·0	5,961·8	13·4
Brandenburg ..	27,061	2,414	2,527	89·2	93·4	541·2	21·4
Mecklenburg ..	22,954	1,405	2,140	61·2	93·2	910·1	42·5
Sachsen Anhalt ..	24,657	3,442	4,161	139·6	168·8	905·5	21·8
Thüringen	15,598	2,431	2,927	155·9	187·7	564·9	19·3
Sachsen	16,910	5,465	5,559	323·2	328·7	679·9	12·2
Russian Zone ..	107,181	15,157	17,314	141·4	161·5	3,601·7	20·8
Berlin	884	4,339	3,200	4,908·4	3,619·9	119·7	3·7
Four Zones and Berlin	355,934	59,740	66,030	167·8	185·5	9,683·2	14·9

From *Das Deutsche Flüchlingsproblem*, by F. Edding, H–E. Hornschu, and H. Wander, *Institut für Weltwirtschaft an der Univ. Kiel*, 1949.

OCCUPATIONS OF POTSDAM GERMANY

States and Zones	*Total Population*		*Agric. and Forestry*		*Industry and Handicrafts*		*Trade and Transport*		*Public and Private Service*		*Domestic Service*		*Independent and Unemployed*	
	1939	1946	1939	1946	1939	1946	1939	1946	1939	1946	1939	1946	1939	1946
Schleswig-Holstein ..	1,538·9	2,575	20·9	17·2	32·0	24·7	16·1	12·0	15·5	10·7	2·4	2·4	13·1	33·0
Lower Saxony ..	4,436	6,250	26·0	21·5	34·0	28·4	15·2	12·5	11·3	10·2	2·0	2·0	11·5	25·4
Northrhine-Westphalia	11,831	11,705	8·7	8·9	52·1	42·4	15·3	13·5	8·3	8·9	2·5	2·0	13·1	24·3
Hamburg	1,698	1,406	1·8	2·4	35·9	32·6	33·8	26·8	11·7	15·8	2·5	1·4	14·3	21·0
British Zone	19,505	21,936	13·0	13·1	45·0	35·7	17·0	13·9	9·8	9·9	2·4	2·0	12·8	25·4
Bavaria	6,899	8,790	28·1	25·8	34·7	31·5	13·7	12·2	9·5	10·7	1·8	1·6	12·2	18·4
Hessen	3,403	3,996	18·1	18·7	40·8	33·3	15·5	12·9	10·1	12·0	1·9	1·5	13·6	21·6
Württemberg-Baden ..	3,159	3,607	18·5	20·6	32·8	36·5	15·1	12·3	9·6	10·9	2·1	1·4	10·9	18·3
Bremen	556	488	3·1	2·7	41·2	32·6	30·3	23·2	10·8	18·2	2·6	1·4	12·0	21·9
American Zone ..	14,078	16,881	22·6	22·4	38·5	32·9	15·1	12·7	9·7	11·2	1·9	1·5	12·2	19·3
French Zone	5,179	5,045	27·1	30·9	39·3	31·2	12·5	7·6	8·8	8·5	1·8	1·6	10·5	20·2
Russian Zone	14,872	17,180	15·6	20·3	44·8	35·6	14·9	12·3	9·6	9·3	1·9	1·6	13·2	20·9
Berlin	4,321	3,187	0·7	1·5	41·1	38·3	24·7	19·8	15·5	16·9	2·5	2·6	15·5	20 9
Four Zones and Berlin	57,895	64,230	16·3	18·3	42·5	34·7	16·2	13·0	10·1	10·3	2·1	2·7	12·8	22·0

West German Federal Republic
from *Country Data Book, E.C.A.*, March 1950

Selected Indexes of Agricultural Production (pre-war—100)

	1947–8	1950–1 (*Est.*)
Crops		
Bread Grains	67	92
Coarse Grains	61	77
Total Grains	64	85
Potatoes	80	114
Dry Legumes	196	192
Flax Fibre	25	96
Tobacco	35	96
Livestock		
Livestock slaughtered ..	51	73
Milk (feed, butter, cheese, and other dairy products)	68	88
Eggs	55	91
Wool	50	90
Gross Output	68	87 (1949–50)
Livestock	56	73

Food consumption derived from net imports

Imports as % of Total Consumption

Commodity	*Pre-war*	1950–1 (*Est.*)
All Foods	34	44
Bread Grains ..	34	47
Sugar	53	53
Potatoes	13	—
Fats inc., butter ..	50	41
Meat	14	3
Eggs	23	7
Milk	4	7
Cheese	29	8
Vegetables	20	11
Fruits and Nuts ..	24	37

West German Federal Republic: Land Utilization.

000s *of ectares*	1935–8	1950–1	*Per Cent*
Land used for Grain	5,152	4,315	17·5
Total Arable Land	8,609	8,171	33·2
Permanent Grassland	5,533	5,375	21·8
Other Land ..	470	664	2·7
Total Agricultural	14,612	14,210	57·7
Forest	6,934	6,974	28·3
Other Land ..	3,054	3,479	14·5
Total Land Area	24,600	24,006	100·0

Index Number of Production from *Monthly Bulletin of Statistics, U.N., March* 1951

Industrial (1936 *as* 100)		*Agricultural Gross Output*		*Foreign Trade* (*Index No. of Quantum*)		
					Imp.	*Exp.*
1946	34	1947–8	68	1937	117	116
1947	40	1947–8	79	1948	67	22
1948	60	1949–50	86 (*Est.*)	1949	102	42
1949	89			1950	128	95
1950	113	*Food Consumed per Capita*		1950 Dec.	166	135
1951	120	Pre-war	3,975 cals. per day			
		1947–8	2,340			
		1948–9	2,605			
		1949–50	2,695	NOTE: *Base is* 1936 *and* 1948–9 *is for Bizonia*		
		1950–1	2,735 (Est.)			

Industrial Production of West German Federal Republic from *Monthly Bulletin of Statistics, U.N., March* 1951

Industrial Production (Base 1936)

	General	*Mining*	*Manufacturing*
1949	89	97	86
1950	113	107	112

Fuel and Power (Monthly production) in ooos of metric tons.

	Coal	*Lignite*		*Electricity*		*Pig Iron*	*Steel Ingots*
1937	9,747	5,479			1938	1,265	1,492
1943	11,439	6,694			1946	174	213
1945	2,957	2,021			1950	789	1,010
1946	4,495	2,499			1951	891	1,125
1947	5,927	4,894	1948	2,576[1]			
1948	7,253	5,405	1949	2,975[1]			
1949	8,603	6,022	1951	4,280			
1950	9,230	6,320					
1951	9,900						

Metal Smelter Production (ooos tons)

	Copper	*Lead*	*Zinc*
1936	10·1	8·3	8·0
1950	11·1	10·0	10·2

Building Construction

Cement (ooos *tons*)		*Building Bricks* (*millions*)	
1937	626[1]	1936	343[1]
1947	225[1]	1948	164[1]
1948	465	1948	164
1950	906	1950	353

Textiles (ooos *metres*)

	Cotton Yarns	*Wool Yarns*	*Rayon*
1937	19·5[1]	3.46[1]	1.8[1]
1947	6.58	2·32	1·3[1]
1950	23·5	7·06	9·4

Foreign Trade of West German Federal Republic from *Country Data Book of E.C.A.*, March, 1950

Total Imports 1949–50 (*Est.*)		
Food and Agricultural	1,271.8	m dollars
Industrial	653	
Total	1,924	
Total Imports 1950–1 (*Est.*)		
Food and Agricultural products ..	1,313	m dollars
Industrial products	709	
Total Imports ..	2,022	

[1] Bizonia

Percentage Distribution of Foreign Trade 1948–9 (1937)

Imports—$1,900 m (1,429):	United States	4·4	(5·2)
	Other Western Hemisphere	7·6	(9·8)
	Canada	1·2	(0·9)
	Switzerland	35·5	(1·7)
	Eastern Europe	11·6	(10·9)
	E.C.A. countries		(33·5)
Exports—$975 m (1,664):	United States	4·7	(3·5)
	Canada	0·4	(0·6)
	Other Western Hemisphere	1·7	(7·9)
	Switzerland	85·8	(3·9)
	E.C.A. countries		(50·0)

Value of Industrial Production 1936 *by Zones of Occupation* (*expressed as a percentage of total value*) from the *Deutschland Jahrbuch*, 1949

Value of Total Industrial Production

British Zone	34·4
U.S.A. Zone	18·0
French Zone	8·1
Soviet Zone	24·3
Berlin	8·7
Total	93·6
East of Oder-Niesse	6·4
Total	100·0

Value of Chief Industrial Products by Zones (*as above*)

British Zone		*Soviet Zone*	
Iron and Steel	74	Ceramics and Glass	37
Mining	58	Paper	33
Power Sources	58	Textiles	36
Iron and Steel Products	58	Power Sources	31
Rubber and Asbestos	51	Water, gas, electricity	30
Oils and fats	72	Precision Instruments	31
		Metal Wares	34
U.S.A. Zone		*French Zone*	
Leather	34	Leather	19
Vehicles	39	Precision Instruments	17
Metal Wares	28	Iron and Steel	15
		Timber	14
		Separated Areas East of the Oder-Niesse	
Berlin			
Electro-technical Industries	48	Mining	10
Clothing	35	Timber	17
Printing	20	Paper	19
Precision Instruments	19	Alcohol	24